

Monitoring Tumor Ablation in Real Time

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Technology description

As an alternative to surgery, thermal ablation is a method of treating tumors of the liver, kidney, lung and other body parts. In the process, a slender antenna or probe is inserted through the skin to drive energy into the tumor, causing cells to heat and die.

Ultrasound or other medical imaging typically is used before the probe is turned on (for treatment planning) and after it is turned off (for treatment verification). A more dynamic method would empower clinicians to monitor progress in real time. UW–Madison researchers have developed a method that uses radiofrequency signals transmitted from a microwave ablation probe to monitor the boundaries between a tumor, ablation zone and background healthy tissue.

The probe emits and then detects the signals as they echo off the different tissue boundaries. Since the boundary between a tumor and background tissue becomes less distinct as the ablation progresses, clinicians can determine when treatment is complete based on these echoes.

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a method for controlling and monitoring tumor ablation using signals emitted from the treatment antenna.

Additional Information

WARF reference number P120091US01 describes a method to degrade tumors using new microwave-emitting slot antennas.

<http://www.warf.org/technologies/summary/P120091US01.cmsx>

Application area

Microwave ablation

Treating cancer of the liver and lung, as well as renal, adrenal and bone malignancies

Advantages

Provides real-time ablation monitoring and control

Easily integrated with existing probes
Useful in a variety of ablation treatments
Simple and intuitive
Any confounding echoes from the ablation region are removed.

Institution

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