

Breast Cancer and Focused Ultrasound



Affecting 2.1 million each year, breast cancer is the most common cancer among women. Standard treatments involve combinations of surgery, radiation, immunotherapy, and medications including chemotherapy and hormone therapy. Lumpectomies, endorsed by the National Institutes of Health in 1990, have largely replaced mastectomies in women with early cancer. Now another revolutionary advance is on the horizon: focused ultrasound, providing incision-free treatment options with rapid recovery and no radiation.

Focused ultrasound is an early-stage, noninvasive therapeutic technology with the potential to transform the treatment of breast cancer at multiple disease stages—decreasing unnecessary death, disability and suffering. This novel technology precisely focuses beams of ultrasound energy on targets in the body with minimal damage to surrounding tissue. The energy at the focal point, where the beams converge, produces a variety of therapeutic effects—with no incisions and minimal risk of infection.



Latest treatments and research with Focused Ultrasound

▶ Building on **Success**

3

international regions
with regulatory approvals

21,000+
treatments worldwide

9

clinical trials



► **Help us revolutionize treatment** for breast cancer by funding studies that will develop strategies for both early- and later-stage disease.

Focused Ultrasound benefits

Noninvasive | No incisions, no risk of skin deformity, reduced risk for infection or blood clots, less pain, and more rapid recovery

Image guided | Precise targeting, minimal damage to surrounding tissue

No ionizing radiation | Fewer side effects and can be safely repeated



Focused ultrasound could replace invasive surgeries such as lumpectomies by thermally ablating tumors. Even partially ablating tumors may induce an anti-tumor immune response so the body can more successfully fight the cancer. Researchers are currently testing whether focused ultrasound can provide targeted drug therapy, delivering drugs directly to breast tumors with decreased systemic side effects. Early studies are also exploring if adding focused ultrasound as a sensitizer can decrease the amount of radiation needed.

Focused ultrasound revolutionizing cancer treatment

Existing treatments

Focused ultrasound treatment and benefits

Surgery

REPLACES invasive surgery

Destroys tissue noninvasively through thermal ablation

Radiation

OPTIMIZES radiation therapy

Decreases amount of radiation by sensitizing the tumor

Medications

TARGETS drug delivery

Provides precise delivery of drug therapies, decreasing systemic side effects

Immunotherapy

ENHANCES anti-tumor immune response

Awakens immune response so the body can more successfully combat the cancer

...the latest in treatments and research

Regulatory approvals

Breast cancer



Your gift's **impact**

We have launched a five-year, \$60 million campaign of which at least \$3 million will be dedicated to breast cancer research.

The Foundation leverages knowledge and funding by partnering with leading organizations, such as the Cancer Research Institute and the Parker Institute for Cancer Immunotherapy.

Research funding helps **answer key questions**

- 1** Which mechanism of action of focused ultrasound can best treat a primary breast tumor?
- 2** How can we optimize focused ultrasound treatments for immunomodulation?
- 3** What metrics can be used to predict clinical success?



A noninvasive **treatment**

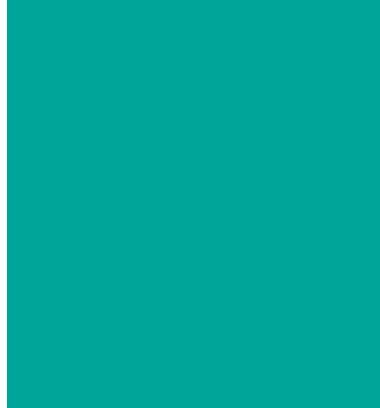
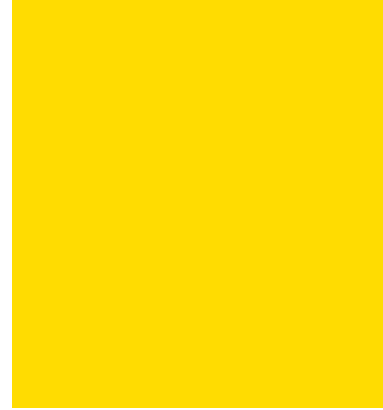
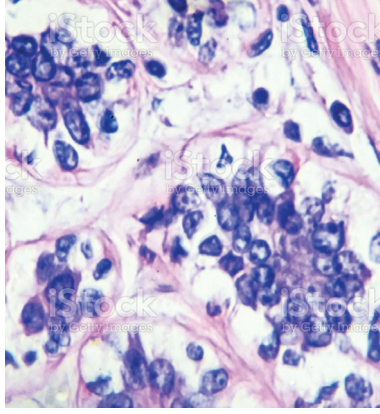
An overview of recent research and groundbreaking developments in breast cancer treatment using focused ultrasound is provided by Suzanne LeBlang, MD, Focused Ultrasound Foundation's Director of Clinical Relationships. ■

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...and breast cancer, building on success



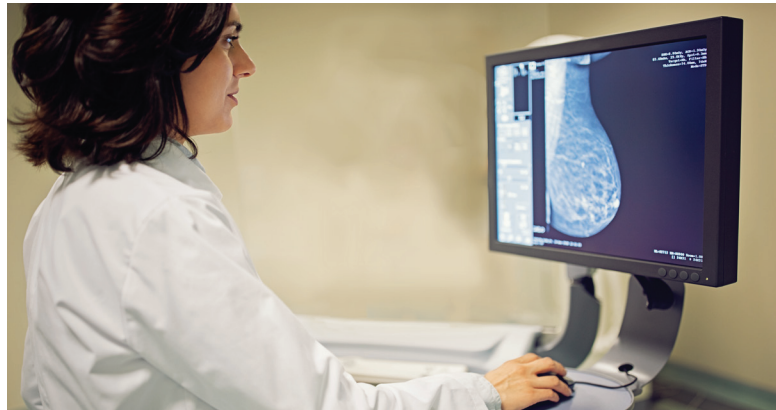
About Focused Ultrasound Foundation

The Focused Ultrasound Foundation is an entrepreneurial, high-performance, medical research, education and patient advocacy organization headquartered in Charlottesville, VA. On the leading edge of venture philanthropy and social entrepreneurship, the Foundation has demonstrated success in accelerating the development and adoption of focused ultrasound, an early-stage, noninvasive therapeutic technology that could transform the treatment of many medical disorders. The Foundation is a 501(c)(3) tax-exempt organization that uses donor funding to bridge the gap between laboratory research and widespread patient treatment.



For more information

Ann Taylor
Chief Relationship Officer
434.284.9286
ataylor@fusfoundation.org



fusfoundation.org

