

## Clinical Imaging with Acoustic Wave or Photoacoustic Tomosynthesis

### Summary (1024-character limit)

Ultrasound-based cancer screening and biopsy imaging technique are a critical clinical need. Ultrasound based biopsy imaging can provide a real-time modality for lower cost that is comparable to, or complimentary to MRI imaging. Researchers at the NIH Clinical Center seek licensing and/or co-development research collaborations for Tissue Characterization with Acoustic Wave Tomosynthesis.

### NIH Reference Number

E-114-2016

### Product Type

- Diagnostics

### Keywords

- tomosynthesis, ultrasound imaging, photoacoustic imaging

### Collaboration Opportunity

This invention is available for licensing and co-development.

### Contact

- John D. Hewes  
NCI - National Cancer Institute

240-276-5515

[John.Hewes@nih.gov](mailto:John.Hewes@nih.gov)

### Description of Technology

Ultrasound-based cancer screening and biopsy imaging technologies are a clinical need. Ultrasound based biopsy imaging can provide a real-time modality for lower cost that is comparable to, or complimentary to MRI imaging. This technology may enable more accurate, less costly and more accessible cancer screening.

Researcers at the [NIH Clinical Center](#) developed a technology that images internal anatomical structure, using ultrasound tomography, and may be used for screening for cancer of internal anatomical structures (prostate, cervix, ovaries). An ultrasound probe, placed internally in a patient's body cavity, is positioned in coordination with a second ultrasound probe placed externally, such as on the abdomen of the patient. Aligning the probes with one another obtains acoustic information for reconstructing, via specialized software, tomographic images of the internal anatomical structures. Light sources may also be used for certain tissue of interest, such as prostate by a transurethral catheter, making photoacoustic waves that



can be received by the ultrasound transducers to reconstruct photoacoustic tomographic image of the tissue.

### Potential Commercial Applications

- \* Cancer screening

### Competitive Advantages

- \* Real-time modality, lower cost
- \* Improved ultrasound image sensitivity

### Inventor(s)

[Bradford Wood \(CC\)](#), [Emad Boctor \(CC\)](#), [Fereshteh Aalamifar \(CC\)](#), [Reza Seifabadi \(CC\)](#)

### Development Stage

- Prototype

### Patent Status

- **U.S. Provisional:** U.S. Provisional Patent Application Number 62/347,437, Filed 08 Jun 2016
- **U.S. Patent Filed:** U.S. Patent Application Number PCT/US2017/036599, Filed 08 Jun 2017

### Therapeutic Area

- Cancer/Neoplasm
- Gastrointestinal