

Abstract Submitted
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Attenuation Measurements of Cell Pellets Using Through Transmission¹ JUSTIN VADAS, CLAUDIA GREENE, EMMA GRYGOTIS, STEPHEN KUHN, SANELE MAHLALELA, TINISHA NEWLAND, IDIL OVUTMEN, MARIA-TERESA HERD, Earlham College — A better understanding of differences in ultrasound tissue characteristics (such as speed of sound, attenuation, and backscatter coefficients) of benign compared to malignant cells could lead to improved cancer detection and diagnosis. A narrow band technique for measuring ultrasonic speed of sound and attenuation of small biological materials was developed and tested. Several mechanical improvements were made to the system to drastically improve alignment, allowing for accurate measurements of small cell pellets. Narrow band attenuation measurements were made first with tissue-mimicking phantoms and then with three different types of cell pellets: Chinese hamster ovary cells, healthy human prostate cells, and cancerous human prostate cells. Attenuation and speed of sound results for all three cell types, as well as the culture medium and tissue mimicking phantoms, are presented for a frequency range of 5 to 25 MHz.

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