

# Miniature Ultrasound Array with Cavity Backing Electrical Interconnect and Electrical Interconnect Solution

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## Technology description

## Market Opportunity

Despite the high diagnostic accuracy of core needle biopsy and vacuum assisted needle biopsy, thousands of the over 1.6 million women who undergo breast biopsies annually in the United States receive false negative diagnoses, allowing cancer progression and increasing mortality. The challenge of missed diagnoses, however, lies not with the failure of pathological analysis but with the inaccuracy of tissue sampling at the time of biopsy. Since current clinical ultrasound systems cannot reliably visualize structures such as microcalcifications in the breast, which may suggest early breast carcinoma such as Ductal Carcinoma in situ (DCIS), new imaging methods to visualize these structures would be clinically beneficial to help improving sampling accuracy during breast biopsy procedures and lead to earlier diagnoses.

## USC Solution

USC inventors have developed a miniaturized high frequency linear array integrated within a core biopsy needle to provide ultra-high resolution images of breast tissue during an ultrasound guided breast biopsy. Such images obtained at the lesion may allow radiologists to identify features not previously seen during conventional biopsy guidance such as microcalcifications, thus achieving more targeted biopsies and improving the diagnostic accuracy of breast cancer.

## Value Proposition

A miniaturized high frequency linear array integrated within a core biopsy needle to improve tissue sampling accuracy

Novel array design and a novel electrical interconnect solution that makes the miniaturization of high frequency linear arrays feasible for mass production via batch fabrication techniques

A high frequency ultrasound biopsy needle can be developed at a low cost

Application area

Targeted and more efficient biopsy sampling for early stage cancer detection

Institution

[University of Southern California](#)

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