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## Probability Map of Biopsy Site

Tech ID: 29045 / UC Case 2017-103-0

### SUMMARY

UCLA researchers in the Department of Radiological Science have developed a technique for generating a probability map on an MRI that indicates the certainty of tissue sampling from a location, which could improve imaging-guided biopsies and their correlation with pathology.

### BACKGROUND

Biopsies using imaging techniques are critical for accurate diagnosis and implementation of radiation therapy protocols in patients with many types of cancer, including prostate cancer. Magnetic Resonance Imaging (MRI)-Guided, MRI-Ultrasound Fusion-Guided, and High Resolution Computed Tomography (HRCT)-Guided biopsies are popular methods for biopsies, routinely used in patients. However, there are several challenge in taking biopsies of possible tumors: to confidently identify appropriate lesions with moderate- to high-grade cancer; to be certain of exactly where the biopsies were taken; and to accurately map onto pathology results, which include a variety of molecular and genomic markers as well as histology.

### INNOVATION

UCLA researchers have developed a technique to generate a smart probability map of sampling tissue locations in imaging-guided biopsies. This technique allows quantification of the uncertainty in the exact location for tissue sampling, which will help physicians more accurately interpret the diagnostic analyses performed on extracted tissue.

### APPLICATIONS

- ▶ Listing the localized target lesions from patients who undergo biopsy
- ▶ Quantifying the probability of tissue extraction sites
- ▶ Biopsies in routine clinical practice or in clinical trials

### ADVANTAGES

- ▶ More accuracy in diagnostic analyses interpretation
- ▶ Quantification of the probability of tissue locations
- ▶ Easy accessibility: compatibility with various platforms

### RELATED MATERIALS

- ▶ Jamshidi, N., Huang, D., Abtin, F. G., Loh, C. T., Kee, S. T., Suh, R. D., & Enzmann, D. R. (2016). Genomic Adequacy from Solid Tumor Core Needle Biopsies of ex Vivo Tissue and in Vivo Lung Masses: Prospective Study. *Radiology*, 282(3), 903-912.

### PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,341,640	05/24/2022	2017-103

### ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Wireless Remote Sensing of Changes in Fluid Filled Containers](#)
- ▶ [Computer-Aided Detection of Implantable Man-Made Devices in Medical Images](#)

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### INVENTORS

- ▶ Enzmann, Dieter R.

### OTHER INFORMATION

#### KEYWORDS

biopsy; cancer; probability map;  
 tissue; location; uncertainty; lesion;  
 MRI

#### CATEGORIZED AS

- ▶ **Biotechnology**
  - ▶ Health
- ▶ **Imaging**
  - ▶ Medical
- ▶ **Medical**
  - ▶ Diagnostics
  - ▶ Disease: Cancer
  - ▶ Imaging

#### RELATED CASES

2017-103-0

▶ [3D Population Maps for Noninvasively Identifying Phenotypes and Pathologies in Individual Patients](#)

▶ [A New Human-Monitor Interface For Interpreting Clinical Images](#)

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