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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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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

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