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Lung Biopsy Tool

IP Status: US Patent Issued # 11,304,685 PCT Application Filed # PCT/US2020/017132

Related Technology: 20160281 Improved Lumbar Puncture And Epidural Accuracy

Endobronchial Ultrasound, LED Illumination, Camera Chip and Steering

A lung biopsy tool features an endobronchial ultrasound (EBUS) sensor, LED illumination, a camera chip, steering capabilities and a flexible biopsy needle. Unique aspects of the device are the integrated camera chip (1x1mm Naneye camera) and LED illumination. The device is less than 2 mm in diameter and can therefore be deployed through the tool port of a standard bronchoscope. While traditional bronchoscopes place both the camera and LED diode at the tip of the device, the LED and camera chip are positioned coaxially in this design, and optical light guides will guide the light around the periphery of the camera chip. The device is also steerable, using either one or two angulation wires (similar to traditional bronchoscopes). The device includes a flexible biopsy needle that is able to take a tissue biopsy adjacent to the EBUS sensor.

Electromagnetic Navigation Bronchoscopy Alternative

Current bronchoscopes are large (5.3 mm diameter) and can be used to biopsy tumors in the larger bronchial tubes of the lung. However, these scopes are too large to reach the periphery of the lung where the bronchial tubes are smaller. While peripheral lung biopsies can be done using current electromagnetic navigation bronchoscopy (ENB) systems, these tend to be expensive and many medical centers may not have them. This biopsy solution combines ultrasound, imaging, and steering in a single device, and since it is capable of reaching tumors in the periphery of the lung, it is an ideal option for medical centers that do not currently have ENB systems.

BENEFITS AND FEATURES:

- Endobronchial ultrasound sensor, LED illumination, a camera chip and steering capabilities
- 1x1mm Naneye camera
- LED and camera chip positioned coaxially
- Optical light guides guide light around periphery of camera chip
- Angulation wires for steering
- Capable of reaching tumors in the periphery of the lung
- Flexible biopsy needle

APPLICATIONS:

- Lung biopsies
- Peripheral lung biopsies
- Medical centers without a ENB system

Phase of Development - Concept prototyped

Technology ID
20160374

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