Novel Imaging Device for Cancer Detection

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Technology description

Background
A major challenge in cancer diagnosis is identifying patients who have cancer or highrisk precancerous lesions based on a small amount of tissue that does not necessarily come directly from the primary tumor. Pathologically apparent changes in cell morphology, examined by conventional microscope, can only detect structural alterations at the scale of ~1 micron. NanoPathology Diagnosis (NPD) will assist in diagnosing cancer in patients who receive an indeterminate diagnosis. NPD will accurately detect malignancy or high-risk pre-cancerous lesions by analyzing the nano-morphology based upon simple tissue sampling.TechnologyNPD is a novel Multi-dimensional Elastic Light Scattering Spectroscopic microscopy system that demonstrates superior sensitivity in detecting subtle, histopathologically indistinguishable nano-structural alterations, or nano-morphology in cells undergoing early-stage malignant transformation. The device analyzes the scatter patterns of several lightwave vectors, as well as qualitative phase information as a method for identifying the malignant potential. The analysis is directly applicable to clinical cytology and histology specimens without modification and can analyze sub-cellular nano-morphology properties with sub-nanometer sensitivity (0.9 nm).ApplicationSecondary analysis of indeterminate results of the following cancer types: * Pancreatic * Breast * Colorectal * CervicalAdvantages* Earlier detection of cancer due to ability to detect structural alterations on cellular level at nanoscale. * Works with standard histology and cytology slides. * Reduces healthcare costs and patient risk associated with unnecessary surgical interventions.Stage of DevelopmentA prototype instrument for this technology has been developed. Standard operation protocol has been developed. Analysis has been per formed on over 400 patients with promising results.

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