Shape-Following Optical Scanner for Disease Detection

Title: Shape-Following Optical Scanner for Disease Prevention

Invention: The invention is a tissue-shape-following miniature probe to identify biomarkers for screening, early detection, monitoring, and intervention.

Background: Miniature imaging probes are normally constrained to one specific imaging technology, have a small field of view, and are able to image non-flat tissues only. This invention improves upon existing imaging probes by utilizing nonlinear optical microscopy and stimulated Raman scattering microscopy. These probes have the potential to quickly make large-area scans in a wide variety of tissue, which are especially useful in monitoring cancer therapies non-invasively.

Applications:

- Pharmaceuticals
- Diagnostics
- Oncology
- Clinical research tools

Advantages:

- Can scan up to 10mm x 10mm x 0.5mm
- Probe is 2.5mm by 2.5mm x 5mm in size
- Shape-following flexible glass window contains a position referencing surface for the probe to follow variations in tissue
- The reflective, achromatic design allows for both nonlinear optical microscopy and stimulated Raman scattering microscopy
- Probe components are compact and low cost

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