Researchers at the University of South Florida have developed a novel method for early cancer detection through detailed tissue analysis to detect overexpressed proteins in both malignant and premalignant cells.

Millions of people are diagnosed with cancer each year. Moreover, lung cancer is the leading cause of cancer related deaths for both men and women in the United States with an estimated 160,000 deaths reported annually. Unfortunately, cancer screenings are not very efficient for early stage lung cancer detection. Traditional tissue analysis methods perform molecular assessments on biopsies of whole tissues. However, these analyses are often confounded due to major differences in cell populations within a single sample. Laser capture microdissection (LCM) technology can now collect consistent populations of intact cells from solid tissue sections for analysis. However, the aforementioned method is not as sensitive as necessary for accurate early stage lung cancer detection.

USF researchers have developed a novel and accurate method to identify both malignant and premalignant cancerous cells for early lung cancer detection. This method includes the coupling of surface-enhanced laser desorption/ionization (SELDI) mass spectroscopy with LCM technology for sensitive results. This precise technique can determine even minor changes in cancer protein expression, thus allowing for early detection in individuals who do not present symptoms. This approach aims to increase cancer survival rates by improving patient prognosis. The invention may also be utilized as a method for identifying premalignant cell biomarkers for early cancer detection.

ADVANTAGES:
- Early cancer detection method
- Recognizes overexpressed proteins and cancerous biomarkers
- Detects premalignant and malignant cells
- Sensitive results via SELDI mass spectroscopy and LCM technology

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