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System and Method for Sample Analysis using Swabs

A rapid, noninvasive swab spray mass spectrometry technique provides accurate diagnostics and tissue analysis for conditions like cancer and neurological disorders without affecting surgical sites.

Researchers at Purdue University have developed a new approach to test biological samples with noninvasive, nondestructive swabs. To properly treat conditions such as cancer where cell environments are rapidly changing, it is beneficial for medical professionals to understand cell behavior of each individual patient. Current nuclear magnetic resonance (NMR), gas chromatography (GC), liquid chromatography (LC), infrared spectrometry (IR), and traditional mass spectroscopy (MS) techniques either require high sample volume or take a long time for analysis. The approach developed by the Purdue researchers is a new technique (swab spray MS) that includes an ambient ionization method in which a minute amount of sample (e.g. tissue) is transferred to a swab tip by a gentle touch, and subsequently ionized with the application of solvent to the swab tip and of high voltage to the swab shaft. A range of tissues such as neurological, cancerous or deep surgical wound tissue can be analyzed by this method and unlike other technologies the process does not affect areas where surgery might be performed.

Advantages:

-Accurate

-Noninvasive

-Nondestructive

-Fast

Applications:

-Diagnostics

-Cancer & Neurological Tissue Analysis

Technology ID
2018-COOK-68114

Category
Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation

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TRL: 3

Intellectual Property:

Provisional-Patent, 2017-08-28, United States | Utility Patent, 2018-08-13, United States | CON-Gov. Funding, 2021-04-05, United States | CON-Gov. Funding, 2023-06-09, United States

Keywords: swab spray MS, ambient ionization, mass spectrometry, noninvasive diagnostics, nondestructive testing, biological sample analysis, cancer tissue analysis, neurological tissue analysis, rapid clinical diagnostics, direct sampling MS, Biologics, Biotechnology, Cancer, Cancer Research, Cancer Screening, Cell Biology, Cellular Resolution Function Imaging, Chemistry and Chemical Analysis, Detection, high throughput, Ionization, Mass Spectrometry, Surgical Tools