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Desorption Electrospray Ionization Probe Chemical and Biological Analysis

A novel catheter-deployable mass spectrometry probe uses non-hazardous water to safely and minimally invasively sample biological surfaces for in vivo chemical analysis.

Desorption Electrospray Ionization (DESI) is a recently developed ambient ionization technique that can be used in mass spectroscopy (MS) for ambient chemical and biological analysis. DESI is capable of generating ions of analytes in raw samples with no separation and minimal sample preparation. DESI has been applied for tissue imaging, but only in biopsied samples.

Researchers at Purdue have developed an ambient DESI probe with the potential to be deployed via catheter for in vivo sampling of biological samples. This probe is directly connected to the mass spectrometer via a length of tube, and the additional length of the tube has been shown to encourage desolvation of droplets and generation of ions for MS analysis. By using water instead of solvent-containing solutions, this device is capable of safely sampling biological surfaces.

Advantages:

-In vivo sampling

-Non-hazardous sampling of biological surfaces

Potential Applications:

-Chemical Analysis

TRL: 5

Intellectual Property:

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01-06, United States | CON-Patent, 2017-06-08, United States | CON-Patent, 2018-05-25, United States | CON-Patent, 2019-01-15, United States | CON-Patent, 2019-08-13, United States | CON-Gov. Funding, 2019-12-19, United States | CON-Gov. Funding, 2020-10-09, United States | CON-Gov. Funding, 2022-03-11, United States | CON-Patent, N/A, United States

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