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Methodology for Morphologically Friendly Tissue Imaging by Desorption Electrospray Ionization Mass Spectrometry

A novel, morphologically friendly method for DESI-MS tissue imaging preserves native tissue structure, enabling enhanced analysis of complex cancerous tissues for medical and pharmaceutical applications.

Imaging mass spectrometry is currently in the translational phase as a tool in medical histopathology and offers a capability of mapping drugs, metabolites, lipids, peptides, and proteins without the need for labeling. Currently, a primary limitation preventing good correlational analysis is the use of chemicals that destroy native tissue structures.

Researchers at Purdue University have developed a novel, morphologically friendly method for DESI-MS tissue imaging. The use of processing chemicals that preserve native tissue structures, instead of destroying them, expands the applications of DESI-MS to tissue imaging. DESI-MS has been used in real time to help surgeons decide how much tissue to take during cancer removal procedures. This new morphologically friendly procedure allows a facile means to distinguish between cancerous and healthy tissues.

Advantages:

-Native tissue structure preserved

-Enhanced imaging of complex cancerous tissues

Potential Applications:

-Medical/Healthcare

-Pharmaceuticals

-Medical imaging

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