Docket #: S25-580

In-Flow Tissue Microablation from Rigid Substrates with Optional Sensitizer Enhancement

Stanford researchers have found a way to isolate tiny regions of tissue directly from standard glass pathology slides for downstream analysis. Unlike existing laser-based methods that typically require special membrane-mounted samples, this approach works on the glass slides already used in routine pathology and research workflows. The system uses a flow cell to capture the ablated tissue material and move it directly into a collection vessel, helping prevent sample loss and contamination. The technology can also use sensitizers to lower the laser power needed for ablation, which may help reduce damage to the sample and improve consistency. Because collected material is suspended directly in buffer, the method is designed to fit more easily into downstream molecular workflows such as DNA, RNA, and protein analysis.

Applications

- Tissue isolation for pathology and translational research
- Spatial molecular analysis from archived tissue samples on glass slides
- Sample preparation for DNA, RNA, and protein analysis
- Tools for pathology labs, CROs, drug discovery companies, and research labs

Advantages

- Works directly on standard glass slides used in clinical pathology
- Helps collect ablated tissue in a controlled fluidic system instead of losing material through scattering
- May reduce laser power needs through sensitizer enhancement
- Designed to reduce contamination and avoid extra sample clean-up steps

- Compatible with archived formalin-fixed paraffin-embedded tissue on glass slides

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