PURDUE INNOVATES | Office of Technology Commercialization

Tunable Mechanical Resonator for High-precision Cutting of Thin Slices of Biological Tissue (Variable Frequency Resontome)

Low-cost tissue slicer that delivers precise, tunable cuts for labs and hospitals.

Vibratomes are widely used for cutting thin slices of biological material. However, commercially available vibratomes are very expensive and yield imprecise cuts. Researchers at Purdue University have developed a device for high precision cutting of thin slices of biological material. The Purdue researchers' device limits perpendicular and out-of-plane motion. The oscillation frequency and cutting speed of the device can also be tuned depending on the sample that is being cut. Additionally, the Purdue device can be offered at a much lower costs compared to current vibratomes in the market. This technology can benefit research laboratories and hospitals by providing a simpler and less expensive method for precision cutting of biological materials.

Technology Validation: The motion of the oscillator is precise; the out-of-plane motion is only 1/1000th as large as the in-plane motion.

Advantages:

- low cost

- high-precision

Application:

- thin cutting of biological material by research labs and hospitals

TRL: 3

Intellectual Property:

Provisional-Gov. Funding, 2022-01-25, United States

Utility-Gov. Funding, 2022-09-30, United States

Technology ID

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Category

Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation

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