

BiopsySplit: Forceps for Mirror-Image Double Samples

Tissue-preserving biopsy forceps with integrated cutting and optional cryobiopsy function

Technology

The biopsy forceps feature two jaws pivotably mounted via a swivel kinematic, which in the closed position form a well-defined resection volume; at least one jaw has a concave contour to stably hold the sample. An integrated cutting device divides the enclosed resection volume into two sub-volumes and separates the tissue sample mechanically into two parts with mirror-image identical surfaces, minimizing compression and shear forces.

An extension of the portfolio integrates a cryobiopsy probe through an access opening; frozen target tissue is gently separated from surrounding tissue via controlled closure cuts and encapsulated contamination-free by both jaws.

Innovation

- Dual cutting within the resection volume produces two nearly identical, separately manageable cut surfaces for parallel HE staining and Raman spectroscopy including SRH workflows.
- Compression-free preparation supported by the inner wall during cutting preserves fine tissue structures, enhancing diagnostic quality.
- Cryo integration: cryoprobe with defined penetration depth, freeze-time controlled sample geometry, and contamination-reduced scraping upon retraction.

Application

- Intraoperative and endoscopic biopsy in visceral, thoracic, ENT, neurology, and urology where rapid dual diagnostics (HE + Raman/SRH) are required.
- Tumor screening, resection margin assessment, rapid intraoperative decision-making, and quality assurance in histopathology.
- Cryobiopsy scenarios with reduced bleeding and contamination, e.g., in lung, liver, or soft tissues, with defined sample shapes and sizes.

Development Status

- Functional principle

Responsible Scientist

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Biopsy, Cryobiopsy, Raman spectroscopy

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