LabSat™ Frozen
Ultra-rapid automated IHC staining on frozen sections

LabSat™ is a compact automated tissue staining instrument for intraoperative IHC.

Only marketed in Europe.
LabSat™ Frozen is an automated staining instrument, based on a cutting-edge microfluidic technology, capable of performing IHC assays on frozen sections in as little as 12 minutes, while maintaining high staining quality and reproducibility.

The ultra-fast turnaround time makes LabSat™ Frozen a great tool to provide timely and accurate responses, for intraoperative IHC consultations.

The instrument is used with the LUNA Kit IHC detection system and is open to any primary antibody of choice.

**LabSat™ Frozen**

- Fully automated solution: automated calibration as well as walk-away function at the end of the day
- Clear overview of the instrument status
- Reports generation for tracking purposes
- Pre-loaded IVD validated protocol: Pan-cytokeratin staining for frozen sections in 13 minutes

**Staining chip**
A single-use consumable chip. It is placed in the stainer and clamped against the tissue slide, creating a microfluidic chamber.

**Distribution chip**
A consumable microfluidic chip which acts as a gateway, delivering reagents and buffers sequentially to the stainer/sample.

**Reservoirs**
4 high volume reservoirs (50mL) for buffers, and 8 small volume reservoirs (2mL) for consumable reagents, among which, 3 for primary antibodies and 5 for LUNA Kit IHC detection system.

**Waste**
The instrument is equipped with a 250mL pressurized waste bottle to collect reagents after their use.

**Software**
LabSat™ Frozen is operated through a simple, user-friendly computer interface:

- **CHIPS**
- **REAGENTS**

**CHIPS**

1. Staining chip
2. Distribution chip

**REAGENTS**

1. Reservoirs
2. Waste
LabSat™ features

Intraoperative IHC
The possibility of performing IHC assays for histopathological consultation during biopsy procedures brings a significant added value to the surgeon’s decision-making process.

Ultra-rapid turnaround time
Thanks to a microfluidic technology called FFeX and a pressurized system, incubation times are dramatically reduced by accelerating the reagent flow inside the staining chamber.

High quality stainings
The closed staining chamber allows ultra-rapid and uniform delivery of reagents onto the tissue section, producing homogenous signal intensity across the area of confinement. Short incubation times limit the exposure of the tissue to harsh conditions and prevent tissue degradation over prolonged assay times.

Compact & robust device
LabSat™ is a Swiss-made automated stainer of small dimensions. This benchtop device is compatible with the space constraints of a frozen section room.
Intraoperative IHC

A new diagnostic tool

The possibilities opened up by ultra-rapid IHC staining may allow physicians to test specific biomarkers during a biopsy procedure in order to reach more precise intraoperative diagnoses. Intraoperative IHC can help reduce the number of additional interventions required and support decision-making, potentially improving patient outcomes.

Workflow

Biopsy arrival → Grossing → Freezing → Cutting

Fixation → IHC intraoperative consultation

H&E → H&E intraoperative consultation

LabSat™ Frozen

Block → Fixation
Primary Ab → H&E
Secondary Ab → Mounting & viewing
Detection → Diagnosis & call surgeon
Counterstain → Avg. time: <18 min

TTF1, frozen section of non-small cell lung carcinoma
Total staining time: 14 minutes
Fast Fluidic Exchange Technology

The staining chip, core of the Fast Fluidic Exchange Technology (FFeX), creates a chamber over the tissue sample where the staining takes place.

In LabSat™ a pressurized system moves reagents through a network of microfluidic channels and delivers them into this closed chamber almost instantaneously.

Located at the heart of the “Health Valley” in Switzerland, Lunaphore is a medtech company born as a spin-off of the Swiss Federal Institute of Technology with the vision of bringing -omics like approaches to tissue diagnostics and dedicated to innovate in cancer research and tissue diagnostics.

Lunaphore specializes in ultra-rapid and automated solutions, performing IHC/IF stainings. LabSat™ is the result of +10 years of research. The company has been recognized as one of the most innovative companies internationally.

PanCK, frozen section of breast carcinoma
Total staining time: 13 minutes

About Lunaphore

A unique microfluidic tissue processor

Prof. Dr. med Alex Soltermann
Surgical Pathology
University Hospital Zürich

"The technology is very promising for obtaining more homogenous and quantitative immunohistochemistry across whole tumor section."

Reagents flow through microfluidic channels, entering and filling the staining chamber.

CLOSED CHAMBER
This micro-chamber enables the homogenous incubation of reagents on the tissue

PRESSURE CONTROLLED
Reagents are delivered to the tissue through active flow

ULTRA-RAPID

TEMPERATURE CONTROLLED
Fine-tuning of temperature conditions is key to achieve a high performance of stainings

HIGH STAINING PRECISION

OPTIMIZED
## Consumables

### Microfluidic Kit
Includes the chips required to operate LabSat™ Frozen: 5 Distribution Chips and 25 Staining Chips.
Ref. MK01

### LUNA Kit
Anti-mouse HRP DAB - IHC Detection Kit validated for IVD use with LabSat™
Ref. DK01

## Instrument specifications

### FEATURES

| Applications     | Fixation: FS  
| Sliding: IHC     |
| Slide capacity   | 1 slide       |
| Slide requirements | Thickness: 1 mm / 0.04 in  
|                  | Width: 25 - 26 mm / 1 in  
|                  | Length: 75 - 76 mm / 3 in  
| Positively charged |
| Tissue thickness requirements | 3-10 μm |
| Staining area     | 22 x 22 mm / 0.87 x 0.87 in |
| Temperature control | / |
| Avg. Staining time | 12-18 min |
| Dimensions        | 22 (H) x 37 (D) x 45 (W) cm / 8.7 (H) x 14 (D) x 17.7 (W) in |
| Weight            | 12.5 kg / 27.5 lb |
| Capacity          | 8 small volume reservoirs (1.5 / 2 ml Eppendorf® tubes)  
|                  | 4 large volume reservoirs (50 ml Falcon® tubes)  
|                  | 1 waste bottle (250 ml) |
| Installation requirements | Electrical input: 100-240V ~AC 50-60Hz 2.0A  
|                          | Air supply: 5-8 bars at 20 L/min (ISO 8573-1 - 1.4.4)  
|                          | (Compressor optionally included) |
| Catalogue numbers  | LS02 - LabSat™ Frozen  
|                    | MK01 - Microfluidic Kit (25 Staining Chips, 5 Distribution Chips for 25 tests)  
|                    | DK01 - LUNA Kit Anti-mouse HRP DAB - IHC Detection Kit for 50 stainings:  
|                    | • Peroxidase block  
|                    | • Protein block  
|                    | • Anti-mouse IgG HRP  
|                    | • DAB - sol. 1 and sol. 2  
|                    | • Hematoxylin |

### CAPABILITIES

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  - Hematoxylin

CK18, frozen section of intestine. Total Staining time: 13 minutes.
Rapid CK on frozen sections

Dramatic reduction of the number of ambiguous results

Interested in LabSat™ Frozen?
Get in touch with us!
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