

LabSat™ Research

Ultra-rapid automated IHC/IF staining

LabSat™ is a compact and open automated tissue staining instrument for IHC/IF.



For Research Use Only. Not for use in diagnostic procedures. Only marketed in Europe.

LabSat™ Research

LabSat™ Research is an automated staining instrument, consisting of one chamber where one tissue slide can be placed for staining. LabSat™ is based on a cutting-edge microfluidic technology, capable of carrying out IHC/IF staining cycles within a few minutes, in a highly precise and reproducible manner. This technology breakthrough together with a fully open system, bring a flexible solution at the reach of medium and small laboratories.

The ultra-fast turnaround times as well as the possibility of using your primary antibodies and detection kits of choice, make LabSat™ Research a great tool for protocol optimization in unprecedented times.



Staining chip

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



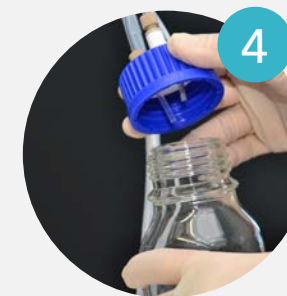
Distribution chip

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



Reservoirs

4 high volume reservoirs (50mL) for buffers, and 8 small volume reservoirs (2mL) for consumable reagents.

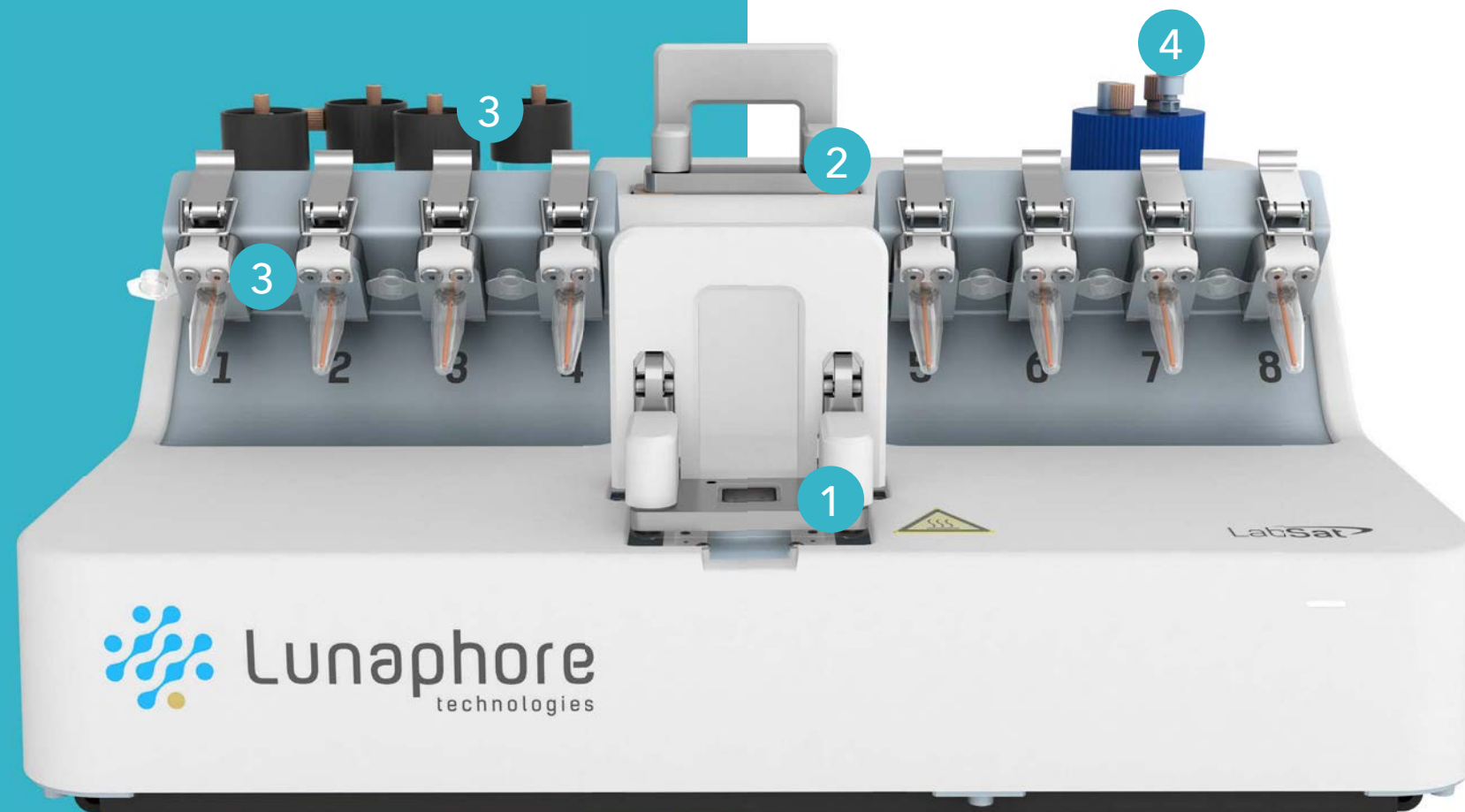


Waste

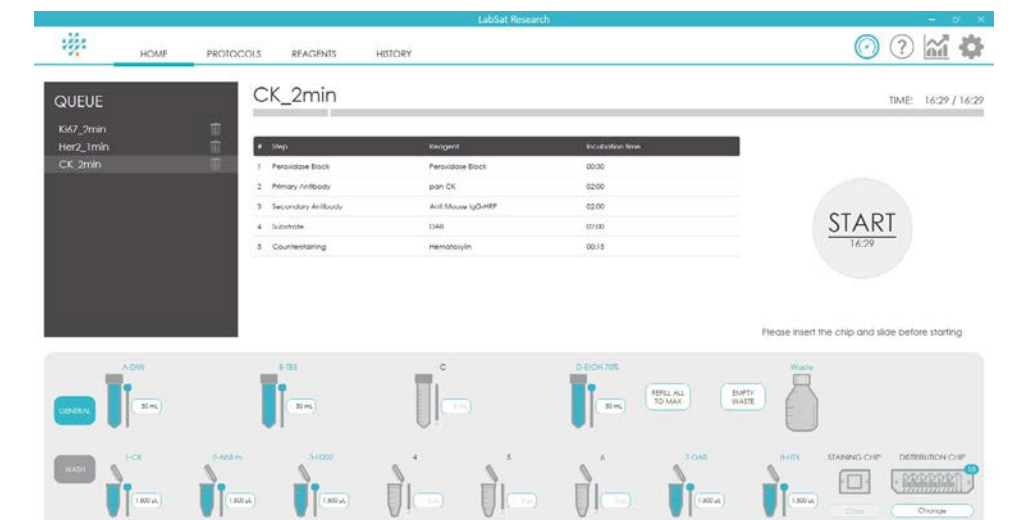
The instrument is equipped with a 250mL pressurized waste bottle to collect reagents after their use.

CHIPS

REAGENTS



Software



LabSat™ Research is operated through a simple, user-friendly computer interface:

- Application protocol templates with pre-selected parameters for optimal results
- Numerous customization options to fit researchers' needs
- Reports generation for tracking purposes
- Fully automated solution: automated calibration as well as walk-away function at the end of the day
- Clear overview of the instrument status

LabSat™ features

Open system

LabSat™ Research provides you with many customization options in order to explore the full potential of your research.



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.



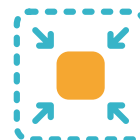
High quality stainings

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.



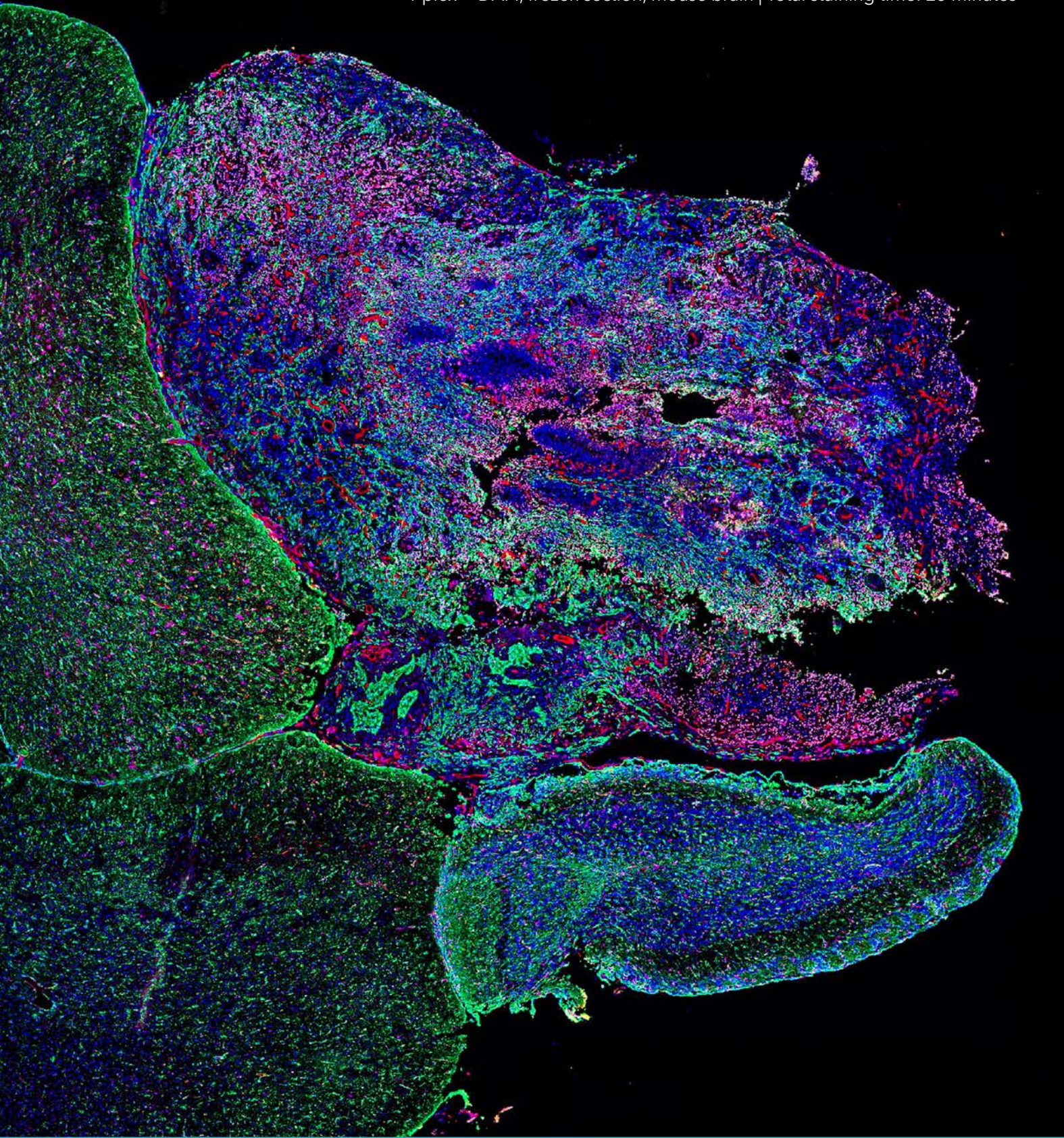
Compact automation

LabSat™ is a Swiss-made automated stainer of **small dimensions**. This benchtop device brings a solution at the reach of medium and small research laboratories.



6-plex + DAPI, FFPE, tonsil (Opal® 7-color IHC Kit)
Total staining time: 4h12m

4-plex + DAPI, frozen section, mouse brain | Total staining time: 25 minutes



“I was extremely impressed with the quality of results we achieved with Lunaphore’s technology. It would normally take us 2 days to perform a 5-color immunofluorescent tissue staining, but with Labsat™ it took us only 30 minutes.”

Dr. Spencer Watson

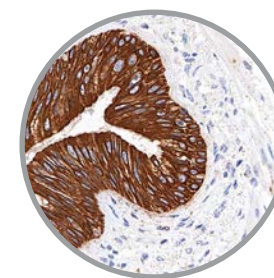
Ludwig Institute for Cancer Research
Johanna Joyce Laboratory, Lausanne

Applications

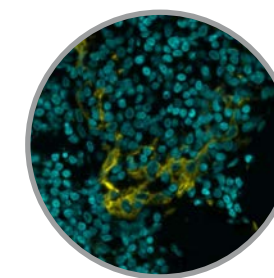
LabSat™ Research is a powerful research tool that can help you automate a wide range of tests involving tissue incubation protocols, such as IHC, IF and multiplexing, among others. To fine-tune your tests, LabSat™ offers the possibility to modify protocol steps, select different incubation parameters or choose your own reagents.

Thanks to LabSat™ short turnaround times, you can accelerate the optimization of your incubation conditions and dramatically reduce the overall test time.

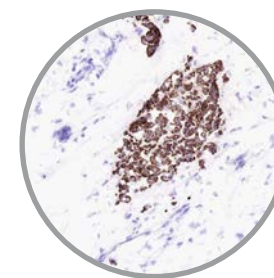
The system allows as well the possibility to create your own Laboratory Developed Tests (LDTs) in order to transfer them from the Research environment into IVD use.



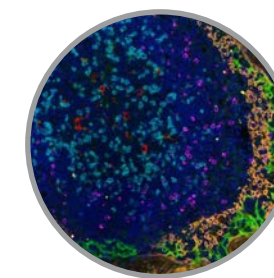
FFPE IHC



FFPE IF

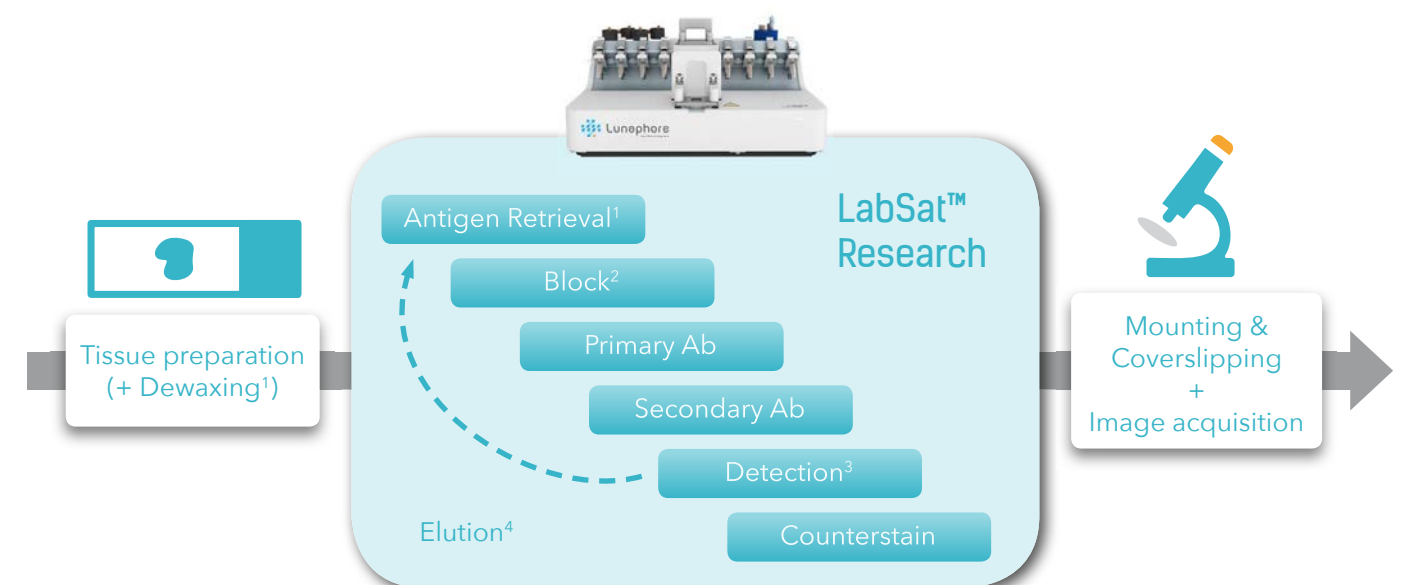


FS IHC



Multiplexed IF

Workflow



¹ For FFPE sample | ² Peroxidase / Protein block (optional) | ³ Not required if secondary antibody conjugated | ⁴ For multiplexing

About Lunaphore

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.

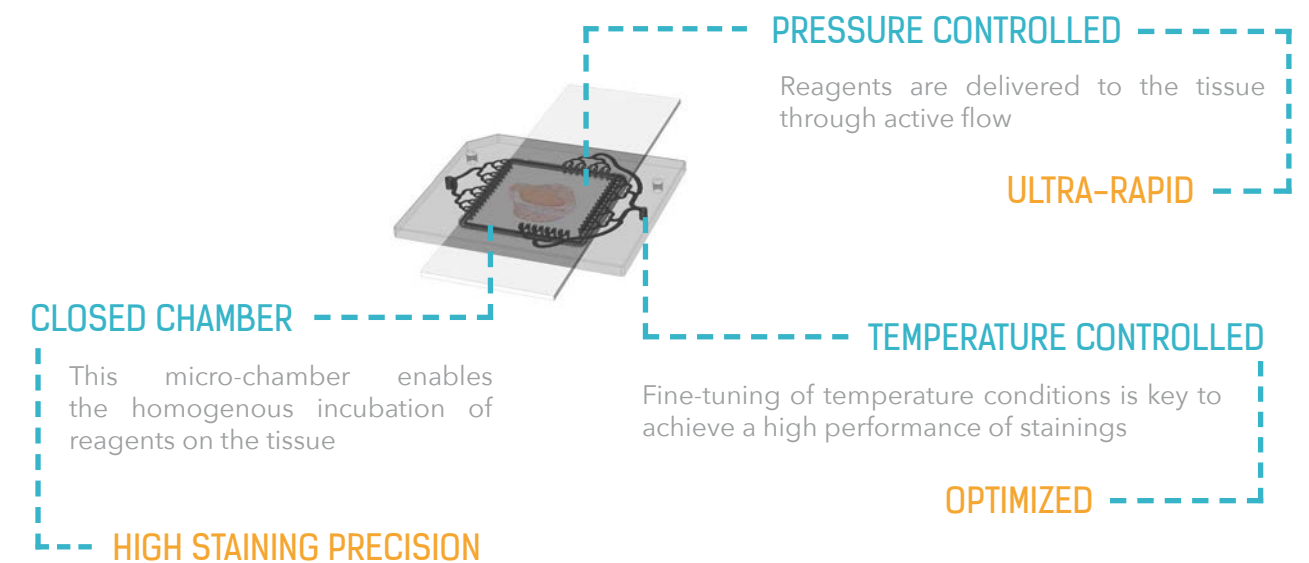
Na-K ATP-ase, FFPE IF, tonsil
Total staining time: 30 minutes

A unique microfluidic tissue processor

Fast Fluidic Exchange Technology

The staining chip, core of the Fast Fluidic Exchange Technology (FFeX), forms 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 hermetic chamber almost instantaneously.



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

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.”

Consumables

Microfluidic Kit (Required)

Includes the chips required to operate LabSat™:
5 Distribution Chips and 25 Staining Chips.

Ref. MK01



LUNA Kit (Optional)

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



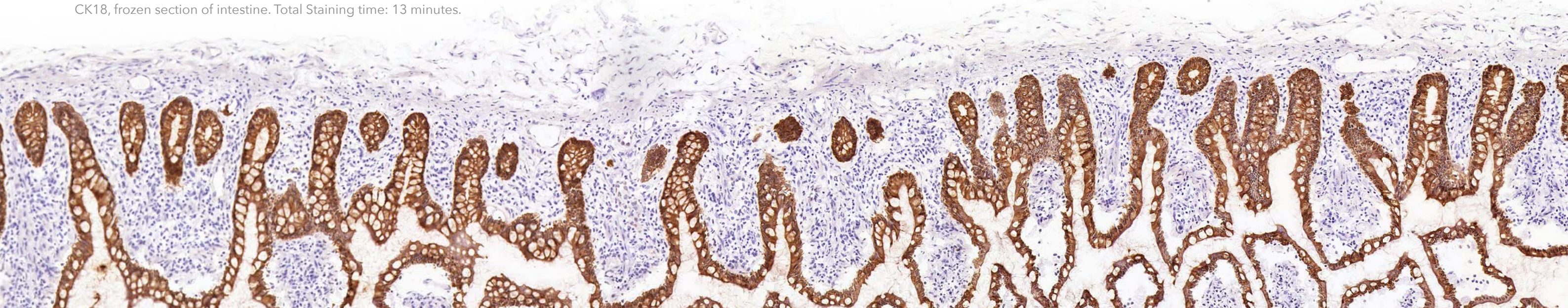
Instrument specifications

FEATURES	CAPABILITIES
Applications	Fixation: FS, FFPE Staining: IHC, IF Monoplex and Multiplex
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	✓
Staining time to first marker	12-18 min (FS) 20-30 min (FFPE)
Software	Software options: - LabSat™ Research - LabSat™ Research + (Computer optionally included)
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	LS01 - LabSat™ Research MK01 - Microfluidic Kit (25 Staining Chips, 5 Distribution Chips for 25 tests)



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CK18, frozen section of intestine. Total Staining time: 13 minutes.



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

www.lunaphore.com
sales@lunaphore.com

Ultra-fast IF staining signals:

S. Brajkovic, B. Pelz, M.-G. Procopio, A.-L. Leblond, G. Repond, A. Schaub-Clerigué, D.G. Dupouy, A. Soltermann, "Microfluidics-based immunofluorescence for fast staining of ALK in lung adenocarcinoma", Diagnostic Pathology 2018 13:79, October 2018.

Quantification of HER2 fluorescent signals:

D.G. Dupouy, A.T. Ciftlik, M. Fiche, D. Heintze, B. Bisig, L. De Leval, and M.A.M. Gijs, "Continuous quantification of HER2 expression by microfluidic precision immunofluorescence estimates HER2 gene amplification in breast cancer", Scientific Reports no. 6, pp. 20277, 2016.

Multiplexing with a microfluidic tissue processor:

G. Cappi, D. G. Dupouy, M. A. Comino, A. T. Ciftlik, "Ultra-fast and automated immunohistochemical multistaining using a microfluidic tissue processor", Scientific Reports volume 9, Article number 4489, 2019.

Dramatic reduction of the number of ambiguous results:

A.T. Ciftlik, H.-A. Lehr and M.A.M. Gijs, "Microfluidic processor allows rapid HER2 immunohistochemistry of breast carcinomas and significantly reduces ambiguous (2+) read-outs", Proceedings of the National Academy of Sciences USA (PNAS), volume 110, no. 14, pp. 5363-5368, 2013.

