

# ADMIR

*Simplify, accelerate, and enhance the diagnosis.*

## ? WHAT IS ADMIR ?

ADMIR is a deep tech start-up designing developing and manufacturing a mid-infrared spectroscopic imaging system with its machine learning software suite for health applications. Its customers are analysis laboratories and private or public hospitals and the end-users are doctors and biologists.

These are facing more and more tests with increasing complexity in less and less time. ADMIR helps them to accelerated and enhance the analysis workflow making them 100x faster and more reliable.

The instrument provides infrared spectral fingerprints for each pixel of the sample image, revealing its biochemical content in less than 1 min. It opens a new route toward tissue or cell analysis for cancer diagnosis or further biomedical applications offering an approach without any reagents, stains and biomarkers.

ADMIR technology benefits from several technical breakthroughs developed at CEA-LETI during these 6 last years. ADMIR technology is an ultra-fast spectroscopic, large field of view, imaging system. ADMIR has a patent portfolio of 12 key patents and knowhow.

## ADMIR @CES 2023

The ADMIR analysis system is simulated using a 3D print mock-up (figure below). For the demo purpose, the illumination source is done through colored LEDs assembled in the demonstrator base. A slab representing the bio-sample is placed above this source and is sequentially illuminated by the LEDs. For the demonstration, the spectral images of the sample are displayed on a large screen at the same time as the LED emission. At the end of a sequence, the users will see the fusion of the images and a simulation of its treatment leading to a pseudo diagnosis.

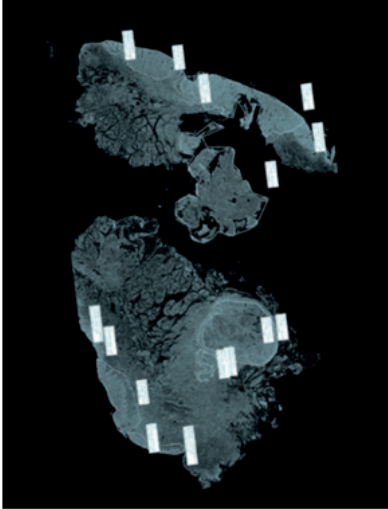


## ! WHAT'S NEW?

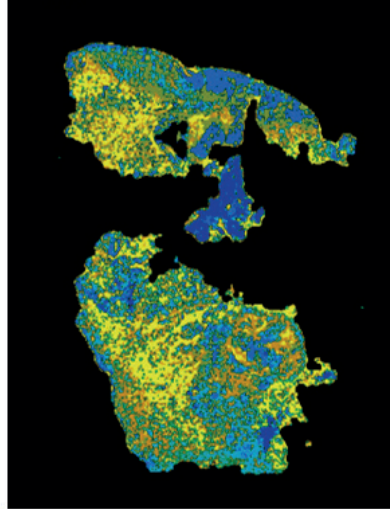
Pathologists, physicians, biologists or biochemists are looking for a fast, reliable analysis solution that allows them to refocus on cases that deserve an expertise. They are also looking for an analysis tool that limits false positives and false negatives. Nevertheless, they wish to remain within the framework of the standard processes of analysis, we bring:

- Proven, robust, thanks to a technology based on infrared spectrometry
- Fast: analysis in less than 1 min for 1 cm<sup>2</sup>.
- Specific thanks to multi-spectral imaging
- Simple because no staining, no reagents and no antigenic markers

Vis-NIR light (Current technologies)



Mid-IR light (ADMIR)



## SCIENCE FOR A BETTER FUTURE

As the James Webb telescope uses the infrared spectroscopic technology to reveal the chemical composition of distant and huge objects of our universe, the ADMIR microscope exploits the same principles to provide bio-chemical mapping of tiny objects of the living world. Our researches have led to a drastic acceleration of the analysis time (down to 1min per image) instead of hours with conventional systems. Thanks to this new approach, the medical world can use this powerful technology, which was so far reserved for the research world.

## INTERESTED IN THIS TECHNOLOGY?

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## APPLICATIONS

- Oncology: anatomic pathology (diagnosis, prognosis, therapeutics)
- Rapid Microbiological Testing: infectious diseases, water analysis, agri-food, beverages, pharmacology and biotechnology, cosmetology

## KEY FIGURES

- 12 patents
- Secrete knowhow
- 3M R&D Funding

## >> WHAT'S NEXT?

Several prototypes are in laboratories. We are specifically working on head and neck cancers and on colonies of bacteria to optimize instrument and algorithms. In the meantime, the instrument will be used for R&D purposes. In mid-term, ADMIR has the ambitious of providing an efficient diagnosis tool for cancers (lung, breast, prostate...) and infectious diseases or for any analyses in pharma or biotech. In long term, ADMIR intends to offer a small enough system to be used inside an endoscope removing the necessity to have a biopsy. This opens a new route toward a fast and weakly invasive tissue analysis.