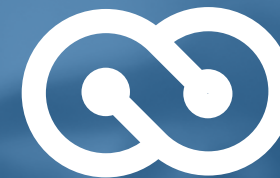


#MEDTTECH

*SATT technologies at the service
of the medtech sector*



RÉSEAU SATT

TECHBOOK

Edition #2 | September 2023

EDITO

Innovation, the SATT Network's answers



The organization of the French health system has changed in the last years to overcome new challenges and opportunities such as digital health, health data sharing, or combined medical devices. The government has put in place new organizations such as “**University Innovation Clusters**” (PUI in French) or G_Nius with **PECAN Program** to help startups develop faster and to help market access with Digital Advance Care.

In more than ten years of existence, SATTs have established themselves as key players in French innovation: unique, mature and operational tools for identifying, analyzing, derisking and transferring proven research results to existing or new economic players. They have an important role to play in this new ecosystem, helping **companies of all sizes** to grow and **develop new products faster**, with the aim of providing easier and faster access to patients.

In 2022, they rolled out new national features including a common business unit dedicated to Medtech. Thanks to this, you now have access to **our new TechBook**, which contains over **30 MedTech innovation offers** from public research all over France.

In line with this dynamic, and with our determination to offer solutions to facilitate access to our innovations for businesses, we will be rolling out a new marketplace, **Tech-365.fr**, by the beginning of 2024.

Nicolas LAMOUREUX, Medtech Alliance Manager - SATT Network

Summary

P2 : Edito

P3 : Summary & France 2030

P4 : The SATT Network

P5 : Startups focus

P6 : Companies testimonials

P7 : SATTs range of services

P9 : The Strategic Alliance Team

P12 : Medtech technologies

P43 : Business contacts

The Medtech, strategic sector of the plan France 2030

At the heart of the France 2030 and Health Innovation 2030 strategies, €7.5 billion has been mobilized for the healthcare sector, including €400 million to support medical device companies in France. The aim is to renew the French industrial fabric in the healthcare sector and strengthen France's technological and industrial sovereignty in a highly strategic sector.

In 2023, the SATTs have confirmed their commitment alongside the French government and the National Union of the Medical Technology Industry, to accelerate the emergence of French leaders and develop the innovative medical devices of tomorrow.



The SATT Network : a booster of innovation in health

Since their creation in 2012, SATTs have supported the development of large-scale medical device projects. To their credit, they have **invested more than €35M in over 300 projects** in the pre-maturation or maturation phase and a portfolio of 400 intellectual property titles.

The impact of this investment is clear, with a total of **60 licenses transferred to companies**, the creation of 47 startups and the development of 36 medical devices, some of which are in the certification or pre-industrialization phase and others already on the market.



35M€

invested in
more than 300
projects



400

Intellectual
property titles



60

License
agreements



47

Startups
created



36

Medical devices
developed

Focus on some innovating startup supported by SATTs

Among the SATT Network's nuggets are **VB-Tech**, which is developing virtual brain technology with a first application for epilepsy, **BoneTag**, which offers a connected and intelligent knee prosthesis solution, **Grapheal**, which is designing a new generation of intelligent dressings, **WitMonki**, which is developing a cardiac activity monitor and recorder, **Kurage**, which is developing an augmented mobility device for people with motor disabilities, and **OphtAI**, which is using artificial intelligence to serve ophthalmology.



AcuSurgical is developing a *high-precision robotic solution to assist retinal microsurgery*. This unique device will allow surgeons to perform operations on very small tissues and will provide patients with greater accessibility and safety. A new era for precision surgery. **Accompanied by the SATT AxLR for the maturation** of this technology of the future and the creation of his company, Christoph Spuhler, co-founded AcuSurgical

in 2020 with four co-founders from the LIRMM laboratory (UMR University of Montpellier and CNRS), the Jean Monnet University and the University Hospital of Saint-Etienne. The startup is now in the pre-clinical trial phase with the aim of testing the device on the first patients in 2023, followed by certification and marketing to hospitals.



NOVIGA was founded in 2018 with the goal of bringing *reliable and innovative diagnostic solutions to the healthcare world*. Today focused on helping to screen for sleep apnea syndrome, NOVIGA offers an online platform to support healthcare professionals in their screening using an electrocardiogram sensor: a diagnostic aid that will simplify and accelerate a screening process that is currently very cumbersome and subject to long months of waiting while making it more accessible. **Supported by SATT Sayens for the technology transfer** phase, NOVIGA was selected among the twelve startups participating in the innovative medical device startup competition organized by Snitem during its dedicated day.

They innovate thanks to a SATT

Our primary mission is the maturation and transfer of technologies to existing companies. This transfer can be done through co-development, which allows the company to actively participate in the development of the technology and its adaptation to the target market, or through a direct license. Among the transfers carried out by SATTs, we can count many companies such as **ADCIS** in image and AI processing, recently acquired by **Evolucare**, or **Glycorex** with the development of a treatment against Rheumatoid Arthritis.



« For Vygon, working closely with Dr. Eric Dumas de la Roque and his team to develop his idea is a source of pride and a guarantee of future progress for premature babies. Aquitaine Science Transfert was able to make the link between our company and the Bordeaux University Hospital with pragmatism and efficiency. Vygon will use all its know-how and expertise in medical devices dedicated to neonatology to transform this idea into a product that is essential for improving care for premature babies. »

François ROCHICCIOLI, Vice President of Vygon's Obstetrics Neonatology BU



« SATT Conectus has been a key element in the creation and development of the Poladerme start-up. Initially, it provided support to the researchers, the inventors of the solution, to study the feasibility of their project and to produce their first prototype. To make the project a reality, Conectus brought the team of researchers together with Medical Devices Venture to create the Poladerme start-up and above all to industrialize the solution. »

Loïc POIRIER, CEO of Poladerme



SATTs, the best services to drive your deeptech projects !

The SATT Network is the partner of choice for companies seeking to improve their competitiveness through technological innovation.

We help you gain you privileged access to the **most promising innovations of French public research**. We transform the discoveries of researchers into robust, closer to industrialization products/ services/processes, to give you access to state-of-the-art, protected technologies. The SATT Network brings together 13 Technology Transfer Offices (SATTs) in France and offers **support services for industrial open innovation strategies and technology scouting**. We can help you reinvent your innovation strategy while limiting your risks.



Deeptech & Innovation, the strengths of the SATT Network

The first local structures in the french Deeptech plan, the SATTs increase your innovation potential.

SATT Key Figures :



17 674

Disclosures
evaluated



3 815

Priority patent
applications filed



1 683

License
agreements



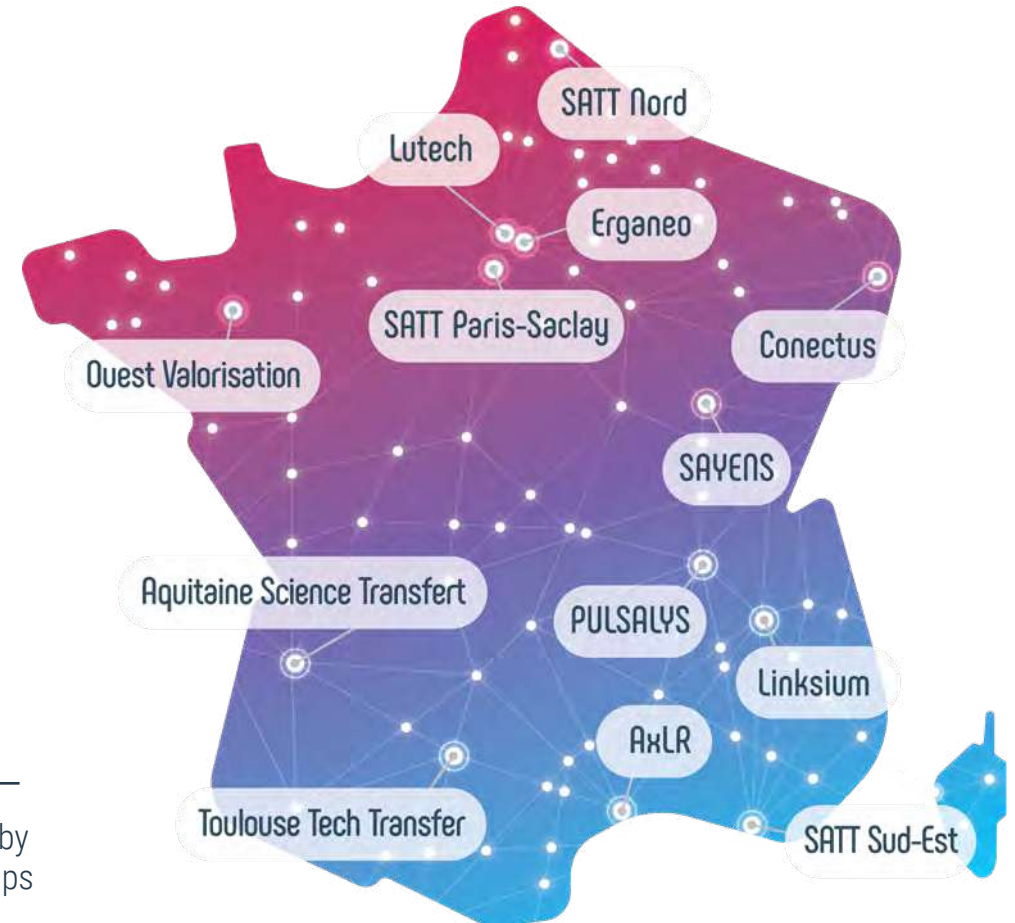
755

Startups
created



1.5

Bn€ raised by
SATT startups



The Strategic Alliance Team

The **Strategic Alliance Team** is a national team dedicated to technology transfer and business development. The advantage? You will be dealing with a **single sectorial expert national contact**, who will be your entry point for providing you with a support service and to identify the **best technologies in the SATT catalog**. This national response in terms of offers and services is a time saver for your company.



**Laurent
AURET**
Strategic
Alliance Manager



**Sandrine
GARY-TREHIN**
GREENTECH
Alliance Manager



**Hervé
ANSANY**
BIOTECH
Alliance Manager



**Aurélie
LEMONDE**
DIGITECH
Alliance Manager



**Nicolas
LAMOUREUX**
MEDTECH
Alliance Manager



Meet us at our next business events

Our team is present throughout the year at business trade shows to **meet companies with innovation needs**. Come and meet us at the next events, where we'll be presenting our services and technologies in the **animal health sector**.



MedFIT
October 10th & 11th, 2023
STRASBOURG, FR
www.medfit-event.com

**PITCH
SESSION**
.....
**DISCOVER OUR
TECHNOLOGIES !**



BioFIT
December 12th & 13th, 2023
Focus on animal health
MARSEILLE, FR
www.biofit-event.com

**PITCH
SESSION**
.....
**DISCOVER OUR
TECHNOLOGIES !**

TECH-365.FR

By  RÉSEAU SATT

Explore innovations from French public research to boost your company's R&D



1. IDENTIFY
technologies according to your needs.



2. SCHEDULE
appointments according to your availability.



3. EXCHANGE
by videoconference directly on the platform.

Tech-365.fr is a unique marketplace for all the latest innovations from French public research that have benefited from SATT expertise.

-  A **dynamic marketplace** continuously updating.
-  A catalog covering **all fields of application**.
-  An **interactive platform** where you can live chat with a team of experts on hand to support you.

6 months

600€*

12 months

1 000€*

18 months

1 200€*

* Price per user

www.tech-365.fr



MEDTECH

TECHNOLOGY PORTFOLIO



RÉSEAU SATT



MEDTECH AESTHETIC MEDICINE



FACE TO FACE

Prediction of botulinum toxin effects through AI software

Technology matured by



Botulinum Toxin Effects

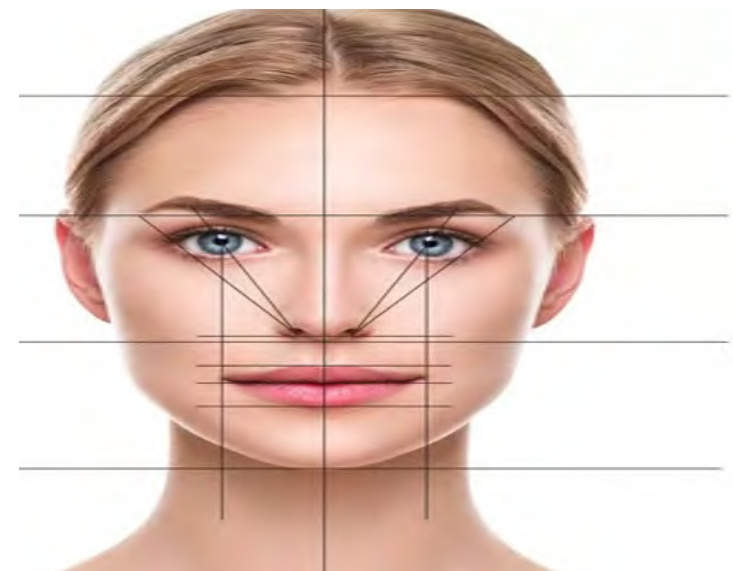
Prediction by AI

Prediction of dose

The software is currently capable of accurately **predicting** the outcome of botulinum toxin injections on patients suffering from permanent facial paralysis.

To achieve the best possible outcome, the software also **learns the surgeon's methods** Linked to the prediction of the outcome,

The software will be **capable of predicting** the specific dose of botulinum toxin to inject on specific muscles of the face.



Alliance Opportunity : Co Development ; Licensing

IP : Software


TRL : 3

MEDTECH DISABILITY



VOLTING

Electric wheelchair with increased mobility

Technology matured by  **SATT**
PARIS-SACLAY
L'innovation en confiance

Electric wheelchair

Increased mobility

Physical rehabilitation

The project aims to develop a new technology for disabled.

- Technology : A new **Electric wheelchair** which will provide new **freedom sensations**
- Use case : **Dance, Handisport** , Physical Rehabilitation and nursing Homes
- Advantages : Will increase the well being of disabled people by doing some extra activity.

Looking for a new distributor



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)

TRL : 4

MEDTECH DRUG DELIVERY



ARC

The innovative passive steerable needle with its stiffness control at your fingertip

Technology matured by **CONNECTUS**
FURNISSEUR OFFICIEL D'INNOVATIONS

Passive Steerable Needle

Stiffness Control

Multimodal Imaging

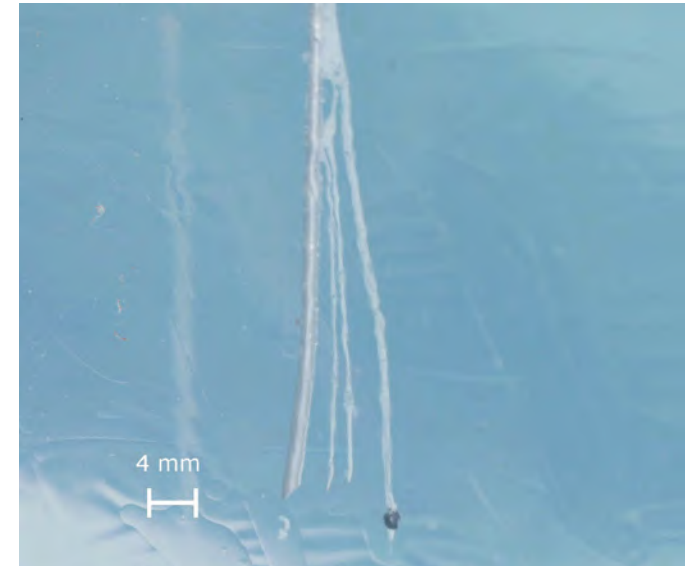
ARC is a novel needle for **multimodal interventional radiology** or **minimally invasive surgery**.

The stiffness can be easily controlled just by **sliding a button** on the handle according to combinatory patterns.

Size, material and configurations can be designed on demand depending on the application. ARC offers the opportunity to correct the trajectory and finally reach the target with limited tissues lacerations.

ARC offers the possibility to:

- Simplify the insertion planification
- **Reduce the patient trauma**
- Increase accessibility
- Lower the surgical intervention



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)

TRL : 5

MEMBAS

Technology matured by **CONNECTUS**
FOURNISSEUR OFFICIEL D'INNOVATIONS

The innovative automatic syringe with controlled administration flowrate

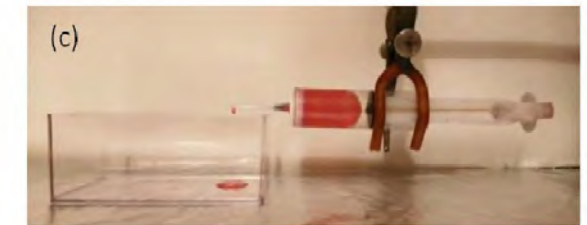
Automatic Syringe

Controlled Flow

Multi Flow Rates

MEMBAS is an innovative syringe capable to:

- Automatically deliver medicines in an IV injection administration route context
- Deliver drugs at **low, controlled and linear flowrate**
- Operate **without any external supply of energy**
- Operate **without any additional medical device** for loading of drug
- Operate **without a person** dedicated to the injection operation
- May be re-used
- Simple to use
- Low-cost



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)


TRL : 4

MEDTECH DRUG DELIVERY



SONO-SENSIBLE DRESSING

Polymeric gel releasing molecules for wound healing

Technology matured by 

Wound healing

Smart dressing

Ultrasound

The polymeric gel can be destabilized by **ultrasound** enabling entrapped molecules to move freely and leave the gel.

This mechanism can be used to **deliver various therapeutic molecules** over a wide frequency range.

We can also use smart dressing to deliver therapeutic molecules under demand over a long time period using a small ultrasound portable device.

The dressing can be changed easily and its composition can be modified **according to the wound evolution**.

Note that changes in composition of the therapeutic entrapped molecules can **extend the dressing use for other diseases**.

Hydrogel
Ultrasound sensitive



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)

TRL : 3



BIOTECH DRUG DELIVERY



SONOCOCTAIL

Ultrasound sensitive perfluorocarbon nanodroplets for theranostic applications

Technology matured by



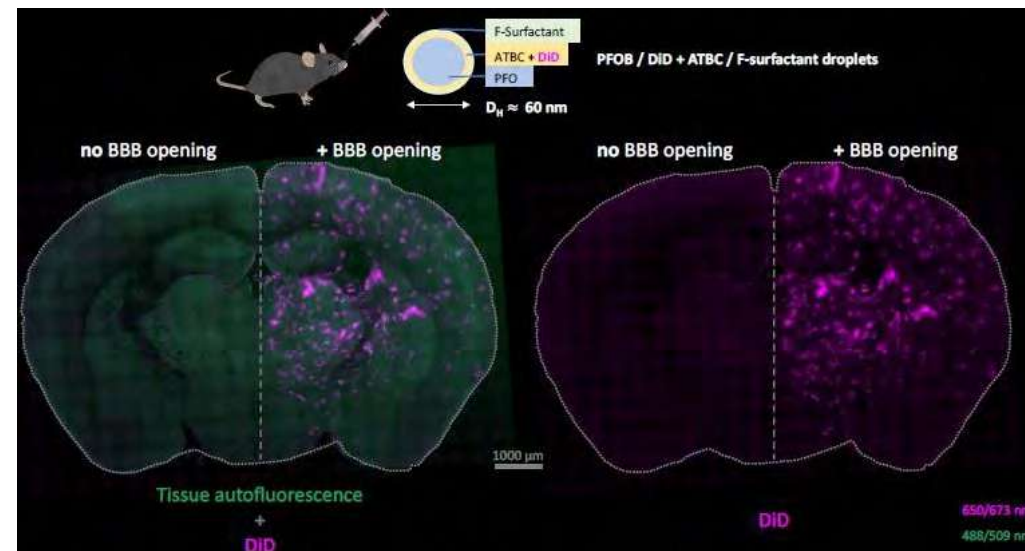
Nanodroplets

Ultrasounds

Theranostic

Developing an innovative therapeutic tool that will carry drugs directly into the central nervous system (CNS) compartments by opening first **the blood brain barrier** then **the shell of the drug carrier** itself, through ultrasound exposure

- Synthesis of perfluorocarbon droplets **stabilized** with biocompatible tailored-made fluorinated surfactants
- Capacity to produce dry and stable formulations with controlled polydispersity indexes (for several months)
- **No sign of acute toxicity** after i.v. administration of 2 g/kg into mice
- Drug loading in high concentration and ultrasound-induced drug release
- The perfluorocarbon droplets are small enough to cross the BBB after ultrasound
- The **fluorescence is clearly visible** indicating the extravasation of fluorescent droplets



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)

TRL : 3

MEDTECH ENDOSCOPY



Technology matured by



ESL

Optical fiber without distal lens for endoscope to reach new or moving areas

Endoscope

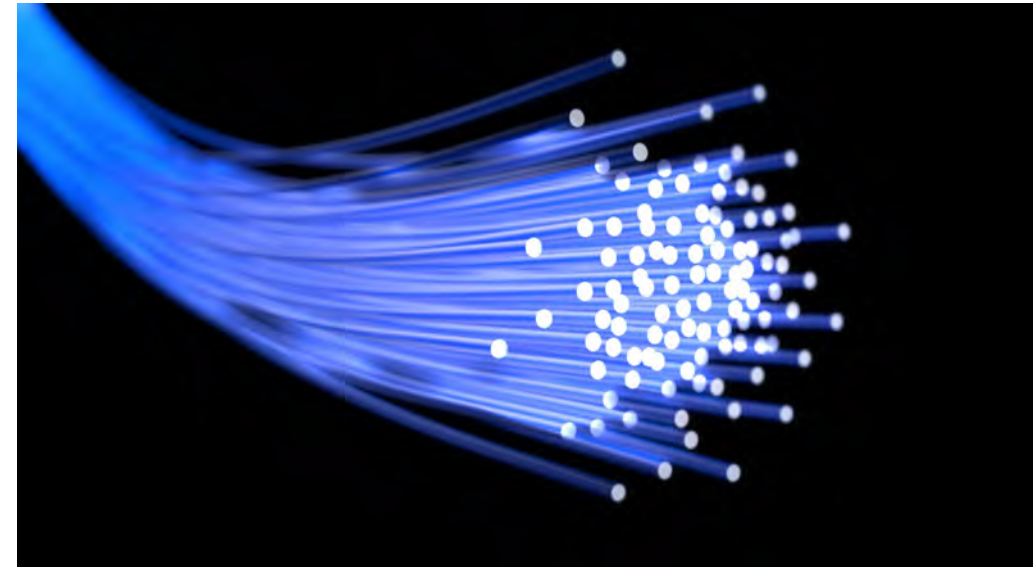
LensLess

Optical Fiber

Reconstruction of the images made by an estimation algorithm possible to recalculate the images while the fiber is in motion

Benefits:

- Compatible with visible, infrared and fluorescence light Resolution •100 x 100 pixels
- Can be adjusted according to the numerical aperture of the fiber between 0.22 and 1.5 μ m
- **Frame Rate 10 frames per second** 20 000 pixels per second
- **Small diameter** 2 50 μ m diameter with the protective sheath / 1 25 μ m diameter without protective sheath Optic fiber length up to 1.5 meter
- Minimum bending radius of 1cm cost price of the fiber compatible with single use



Alliance Opportunity : Co Development

IP : Patent (<5 years)

TRL : 5

EEG CAPTOR

Using oocytes mechanical properties to increase ICSI success rates

Technology matured by



ICSI

Oocytes

Micromanipulation

Added stage to existing ICSI platform that provides precise oocytes mechanical properties in order to select the **best oocyte** to be fertilized, **best ICSI timing** and embryo transfer.

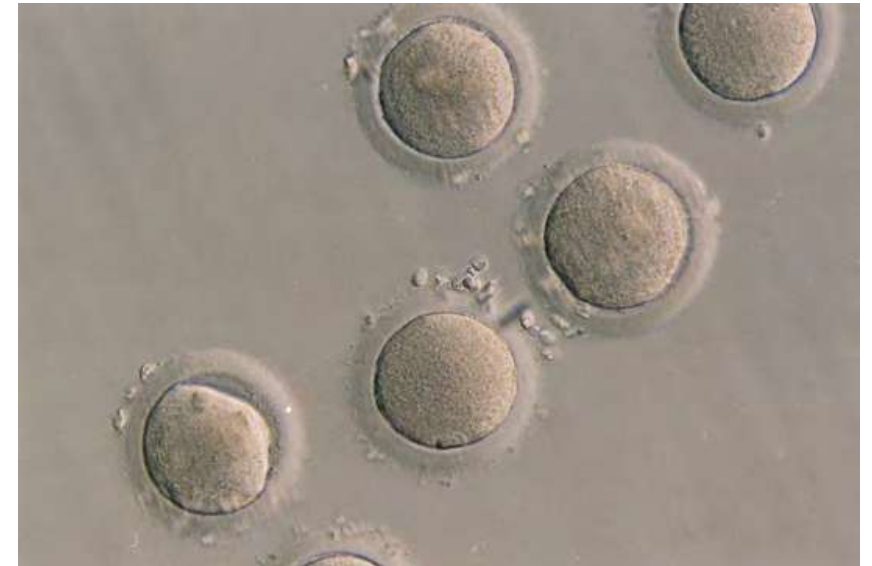
Prototype installed in a medically assisted reproduction center

Upcoming development : First clinical trials of oocytes intended to be fertilized

Advantages :

- Maximizes ICSI success rates
- Save time & costs

Patent : FR1753330. Eu - Us - Ca - Ch - Jap - India




Alliance Opportunity : Licensing

IP : Patent (<5 years)

TRL : 5

IA-MAI HEART

Technology matured by 

Auto AI segmentation in cardiac radiology (SCAN & MRI) : aorta, ventricle and epicardic

Imaging

Heart disease

AI

It is composed of different segmentation that measure **specific cardiac anatomical features**

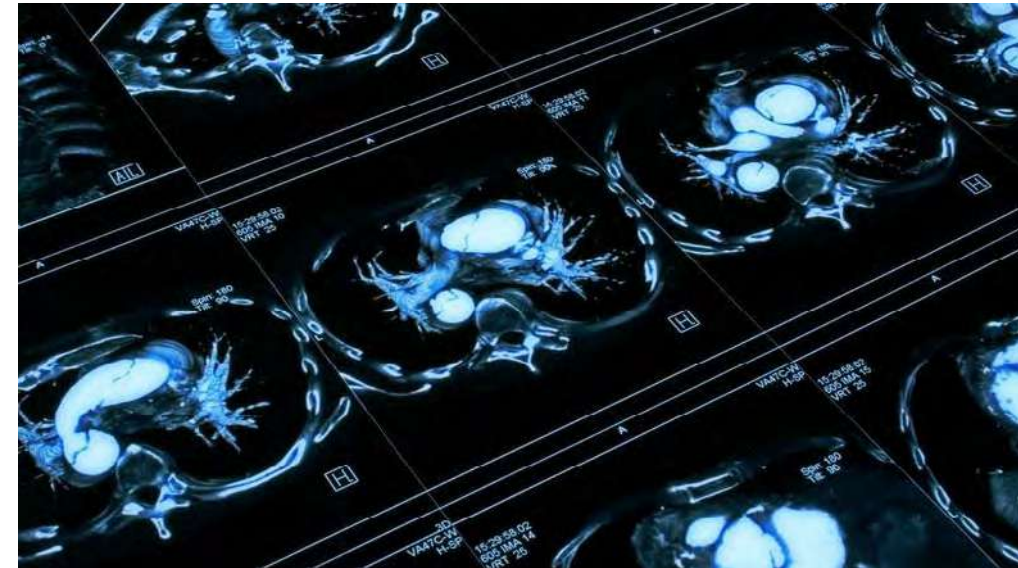
Those software integrates a complete process from raw images to quality control results (**Semantic Segmentation technology**)

Within few seconds, **Different CNN 3D engines coupled with an algorithm** are able to reconstruct and give an optimal result.

it is actually already used in a regional hospital

Different segmentation functions are already available

1. Normal and pathological thoracic aorta (Thrombus,...) + Volume, length and diameter calculation
2. Epicardic on thoracic scanner (Low / ultralow dose)
3. Left Ventricle trabiculae masses (Cardiac MRI)



Alliance Opportunity : Co Development ; Licensing

IP : Software

TRL : 5

INNOVATICS (IPAM)

Portable imaging medical device enabling TcPO2 measure on wounds

Technology matured by



Chronic wounds

TcPO2

Diagnostic

IPAM solution is:

- Ergonomic , portable and **contact free device**
- TcPO2 measure in **less than 1 minute**
- **High colorimetric measure** and high resolution
- **On going clinical study** vs reference solution in hospitals
- Applications : hospitals and care homes



Alliance Opportunity : Licensing

IP : Patent (>5 years)

TRL : 3



MEDTECH IMAGING



NANOPTIX

In vivo dosimetry of ionizing radiation

Technology matured by



Brachy-therapy

Proton-therapy

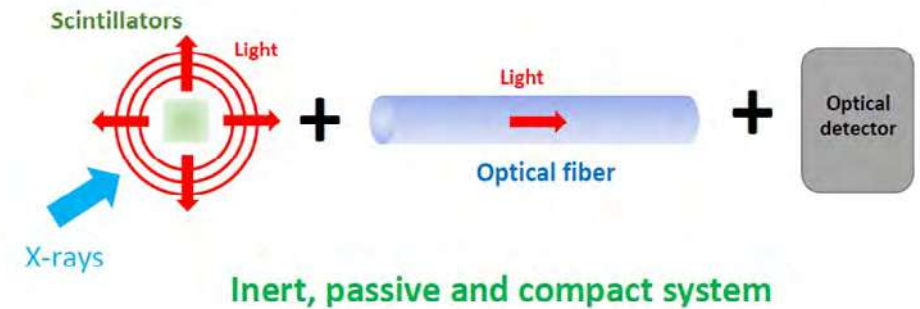
dosimetry

NANOPTIX technology has been developed to overcome the **lack of reliable real-time RT dose monitoring**.

The association of a **small size fiber (<100µM)** with **high quality signal** delivers reliable measurements and minimized invasiveness.

NANOPTIX fibers have **a high sensibility** and spatial resolution by their multi-probes sensors properties.

Prototype successfully tested in clinical environment



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)

TRL : 6



MEDTECH IN VITRO DIAGNOSTIC



ACOUSTIC BIOASSAY

Biosensor for real-time selection and monitoring of multiple markers

Technology matured by



multiplex

biosensor

heart disease

Miniaturized acoustic biosensing device consisting of cells allowing the **simultaneous and specific detection of several biomarkers**.

The device is able to discriminate the signals emitted **by each cell of the biosensor**, thus allowing the simultaneous detection of various biomarkers of interest without lengthening the patient's treatment time and without complicating the manipulations to be performed.

Primary tests on cardiovascular and infectious markers are ongoing.



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)

TRL : 4



MEDTECH IN VITRO DIAGNOSTIC



DIAGMASS

Diagnosis method by mass spectrometry, in sera, for invasive fungal infection (IFI)

Technology matured by



Invasive fungal infections

Glycans

Mass spectrometry

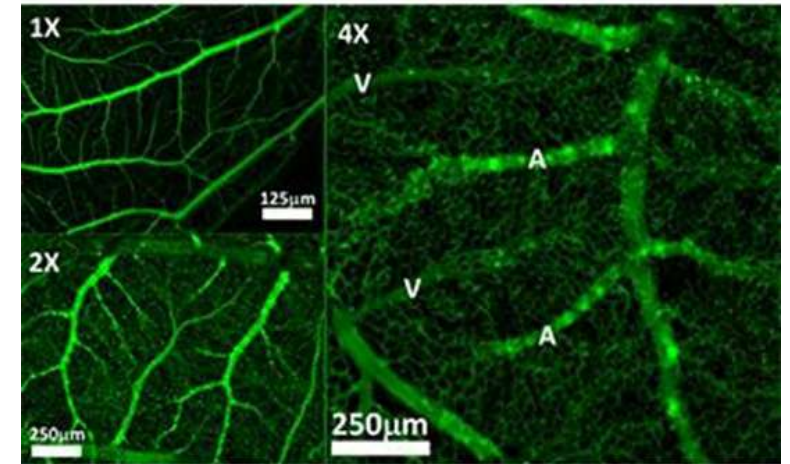
Invasive Fungal Infections are frequent among hospital patients and associated with **high mortality**.

An early appropriate treatment is crucial for improving prognosis

Unfortunately, **therapeutic decision is impaired by difficulties in diagnosis** : classical microbiological methods (Blood cultures) lack of sensitivity,

Current immunological or biochemical serological tests provide limited diagnostic help in terms of sensitivity or specificity

A "One Step" purification coupled to an analysis by mass spectrometry (MALDI TOF) of human serum allows **rapid, specific** and **highly sensitive** detection.



Alliance Opportunity : Co Development ; Licensing

IP : Patent (>5 years)


TRL : 6

MEDTECH IN VITRO DIAGNOSTIC



HEPA-CYTO

A new blood biomarker for improved treatment management of AILD

Technology matured by  QUEST VALORISATION
Ressources d'innovation

Blood marker

Liver

Hepatitis

There are many challenges in the diagnosis and management of **AILDs** (AUTOIMMUNE LIVER DISEASES):

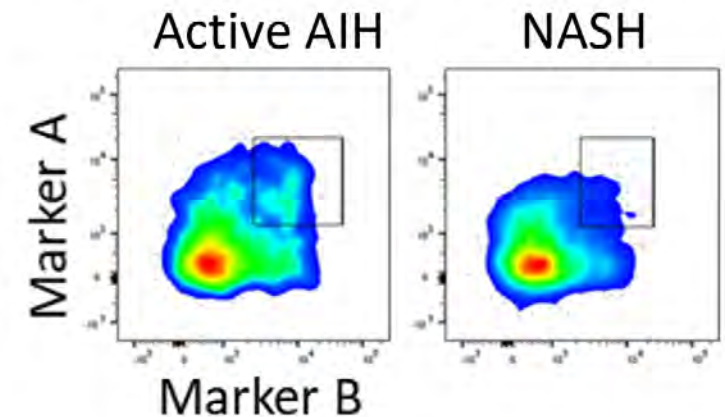
Autoimmune hepatitis (AIH), **Primary biliary cholangitis** (PBC) and **Primary sclerosing cholangitis** (PSC)

AILD require life-long treatment with associated side effects.

Therefore, this innovation aims to: **predict** relapsing events during treatment, **identify** patients that are refractory to classical treatments, **evaluate** the immunological efficacy of a treatment and predict the progression of the pathology.

It is a biomarker of AILD activity in the blood of patients associating **10 markers** to identify T cell subsets specific of AILD activity by flow cytometry in the blood of patients (preliminary data for AIH)

Flow cytometry raw data



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)


TRL : 4

MEDTECH IN VITRO DIAGNOSTIC



NLISA

Luminescent nanoparticles for ultrasensitive biomolecules detection

Technology matured by  **SATT**
PARIS-SACLAY
L'Innovation en confiance

In vitro Diagnostic

Immuno assay

Luminescent particles

Most medical decisions are based on in vitro diagnostic tests for detection of **biomarkers in biological fluids** (blood, urine, saliva, etc,...).

These tests are also used to monitor the **evolution of diseases**.

The future challenge is to develop **low-cost diagnostic tests**, with **ultrasensitive detection** in order to detect molecules at lower concentrations, and thus difficult to detect.

NLISA is dedicated to the development of a new technology based on lanthanide-ion nanoparticles for ultrasensitive detection.

Key Advantages:

- Ultrasensitive detection
- Quantitative Multiplex detection
- Fast and Multimodal detection
- Detection in complex media



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)

TRL : 3

MEDTECH IN VITRO DIAGNOSTIC



SENSIFONG

New test for detecting the resistance of fungus to antifungal drugs

Technology matured by



Resistance to antifungal drugs

Results in 6 hours

Automated and standardised

SensiFONG is an **innovative antifungal susceptibility test**.

Unlike all tests currently on the market based on fungal growth,

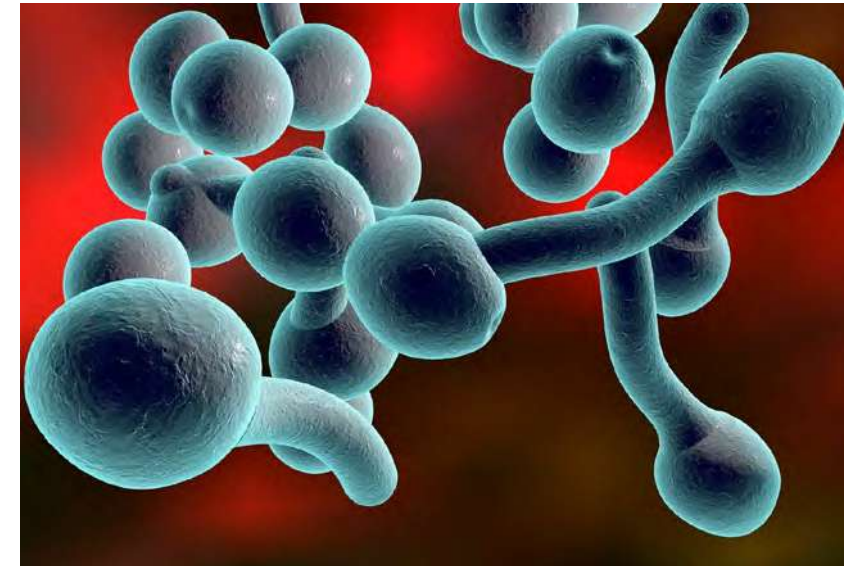
It detects **chitin level changes** in the fungal cell wall after antifungal treatment by epifluorescence microscopy.

The POC is validated on a **broad spectrum of Candida and filamentous fungi** for clinical applications in human and phytosanitary health and is a **fast 6-hour test**

The reading of the results is **automated and standardized** for a reliable and effective record. It presents a wide range of applications such as Human health, Animal health, Agriculture, Security

It will allow:

- **The detection of resistant strains**
- **Evaluation of the effectiveness** of new antifungals



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)

TRL : 3

MEDTECH METABOLISM



Technology matured by



An innovative technology to decipher environmental body contamination.

Pesticides pollution

Body contamination

Environnemental

The technology is based on a specific bio-affinity strategy, making possible **highly sensitive detection of fat environmental body** contamination and impact.

Our sampling technology gives access to the monitoring of damages tissues.

It can be **performed at home** and processed remotely.

It is highly sensitive compatible with the low dose environmental cocktail scenario.

Moreover, it is **low-cost** compatible with a large scale preventive approach.

- Pre-industrial prototypes and proof of concept of our technology have been done focusing on pesticides and more specifically glyphosate .
- Two medical devices have been designed to explore the **active and storage human/animal body pollution**.
- Clinical translation should start end 2022 as well as industrialization to move to CE-norm certification.



Alliance Opportunity : Licensing

IP : Patent (<5 years)

TRL : 3

MEDTECH MICROMANIPULATION



ACOUSTWEEZER

Technology matured by



Acoustical tweezers for contactless and selective manipulation of micro- and nanoscopic objects

Microtweezer

Microgripper

Particletrapping

3D Trapping and manipulation The manipulation is **contactless** and **non-invasive** and do not interfere with biological process thus limiting alteration of the particle, cell,...

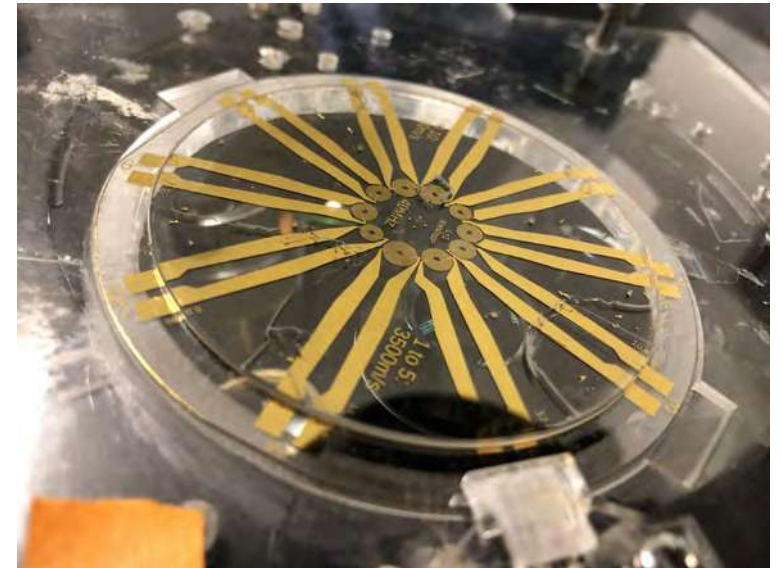
The **MEMS** is highly compact and can be easily integrated in existing systems (microscope, lens, lab on a chip)

The system can manipulate particles ranging from 1 mm to 100 nanometers

The device production is simple, cheap and compatible with current equipments.

No pre-marking is required for the manipulation

The **MEMS** is printed on a transparent material, enabling simultaneous manipulation and visualization.



Alliance Opportunity : Co Development ; Licensing

IP : Patent (>5 years)

TRL : 6

MEDTECH OBSTETRIC



ACCOUZEN

Virtual tool for the management of childbirth trauma

Technology matured by



Tokophobia

Maternity

Anxiety

Tool for **exposure to anxiety-traumatic situations** allowing women to work on dreaded situations related to their childbirth

With AccouZen, several scenarios are available for the therapist,

The use is assisted in **manual mode** or in **predefined scenario** :

- The patient is facilitated in her immersion
- The sessions are personalized and managed in continuity
- The tool respects the patient's privacy



Alliance Opportunity : Licensing

IP : Patent (<5 years)

TRL : 5

Technology matured by



Microfluidic chip containing a polymeric matrix loaded with a compound release for several weeks

CELLS ENTRAPMENT

COMPOUND RELEASE

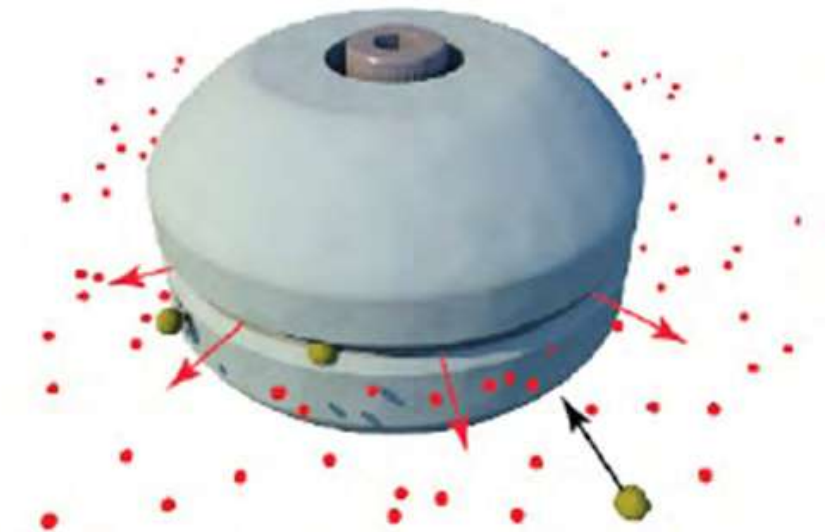
TUMOR

The polymeric matrix can be loaded with **chemo-attractive agent** for attracting and entrapping metastatic cells.

Microfluidic channels were specially designed to **avoid cells exit** when entrapped in the internal reservoir.

Implanted subcutaneously, this device can be an elegant solution to **reduce metastatic cells circulation** and **tumor invasion** prior to surgery (i.e breast cancer).

POC was performed with PEEK prototype implanted in mice injected with 4 T1 cells in the mammary gland.



Alliance Opportunity :

IP : Patent (<5 years)

TRL : 4

MEDTECH OPHTHALMOLOGY



FLAM

A new designed device for Laser assisted corneal refractive surgery and keratoplasty

Technology matured by



Corneal

Surgery

Keratoplasty

Manufacturing Cost Reduced for Higher Performance

- **All in One Tool**

Corneal flap, keratoplasty, intrastromal lenticule, ring pockets, cataract

- Compacity and Mobility
- Fiber Delivery
- **3D Beam Deflection**

3D high precision corneal cutting

3D galvo scanner

Tailored high NA & large field focusing lens combination

- Agile Laser Technology

Tunable laser parameters

High pulse energy(upto20μj) / High rep rate(upto1MHz)

- **Minimally Invasive surgery**



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)

TRL : 5

MEDTECH ORTHOPEDIC



BSS

Innovative medical device in cementoplasty

Technology matured by



Cementoplasty

Stent

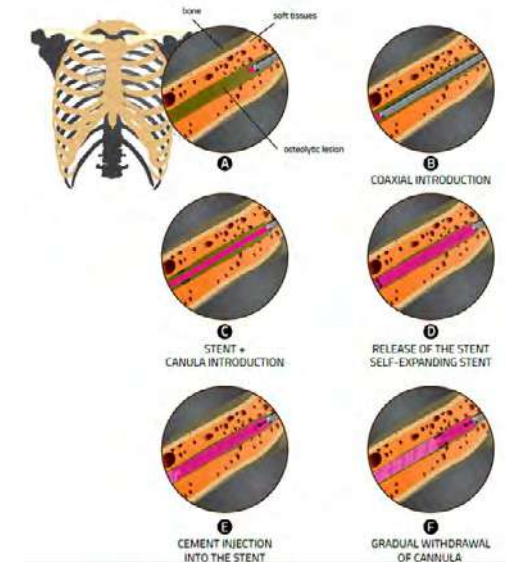
Bone

BSS (Bone Stenting System) represents a breakthrough in Cementoplasty.

2 Technologies in One:

- **Control of Cement delivery**
- **Restrain of remaining ciment** thanks to a new model of stent

BSS offers then a **reinforced mechanic stabilization**, switching between osteosynthesis and cyphoplasty.



Alliance Opportunity : Co Development ; Licensing

IP : Patent (>5 years)

TRL : 6



MEDTECH PACKAGING



MATANTIBAC

Designing the next generation antibacterial polymer materials

Technology matured by



Antibacterial polymers

No bacterial resistance

Easy to produce

Development of antibacterial polymer materials is achieved through surface modification by grafting or deposition of molecules, or through dispersion (antibiotics, biocides, nanoparticles, etc.). The technology relies on **synthetic antimicrobial polymers that mimic peptides** and presents many advantages

- **Enhanced antimicrobial activity:** These synthetic polymers exhibit potent antimicrobial properties, comparable to natural peptides.
- **Broad-spectrum efficacy:** They are effective against a wide range of bacteria, including drug-resistant strains.
- **Durability:** They maintain their antimicrobial activity over time, providing long-lasting protection.
- **Resistance prevention:** They reduce the likelihood of bacterial resistance development, making them a promising solution in combating bacterial infections.
- **Versatility:** They can be incorporated into various materials and products, including medical devices, textiles, and coatings, offering many applications.




Alliance Opportunity : Licensing

IP : Patent (>5 years)

TRL : 5

ACTIPHYTNESS

Patented real-time and accurate monitoring of physical activity

Technology matured by  QUEST
VALORISATION
Ressources d'innovation

E-HEALTH

SENIOR

ACTIVITY

Actiphytness main assets in view of competitors devices are the **high accuracy** of activity analysis, the number of **detected activities**, the number of **metrics** for each activity, and the ability to detect **transition** between states.

Advantages & benefits:

- **Low battery consumption** (20 to 50 days depending on embedded firmware)
- Generic **embedded sensors** (Accelerometer, Barometer)
- **A multiple positioning** in the value chain of patient care: Prevention, Diagnosis, Therapeutic adjustment and monitoring, Ambulatory surveillance
- Multiple applications : Ambulatory monitoring devices, Remote surveillance for elderly, Activity monitoring devices for sport, Posture analysis devices, Research, etc.



Alliance Opportunity : Licensing

IP : Patent (<5 years)

TRL : 5

MEDTECH RESPIRATORY



COVEM

Multimodal method to evaluate the respiratory physiological state in intensive care

Technology matured by



Patient monitoring

Respiratory needs

Physiological state

Multimodal method for characterizing the respiratory physiological state of an **intubated/ventilated patient** based on:

- The integration of different physiological signals (EEG, ECG, EMG),
- Feedback to respiratory assistance.

This will enable to adapt respiratory needs to for **patients in intensive care**.

The infographic details the COVEM project's goals and methods. It states that the goal is to support a team of researchers in a pluridisciplinary approach with SATT LUTECH to define the next generation of innovative solutions to monitor the characteristics of physiological state changes and more precisely the respiratory state of ventilated patients in anaesthesia-intensive care. Mechanical ventilation is an early cause of discomfort and has been widely used during cardiopulmonary resuscitation (CPR), however, it is not entirely free of risks and complications. Mechanical ventilation also causes electrical mechanical or metabolic ventilation failure in breathing support for people who are not able to fully breathe on their own. Mechanical ventilation is considered to be necessary to replace the activity of the respiratory muscles by providing the energy needed to meet all respiratory needs to gain the lungs.

However, there are still some **controversial issues** regarding its use, such as the **assessment of the effectiveness of mechanical ventilation**, the **analysis of its optimal oxygen concentration (FiO2)**, **tidal volume (VT)**, **respiratory frequency**, and **mode of ventilation** during CPR and beyond.

Currently, the management of dyspnea lies on the clinician's criterion that modifies the ventilator settings. Commercial respiratory flow is obtained using flow or volume sensors, which are not able to detect the respiratory volume within 1 hour, as well as blood parameters (pH, AZ2, PCO2, PO2).

This, opening the road for an automatic and assist respiratory while considering the muscle needs and the patient stress conditions.

An invention for ventilated patients in anaesthesia-intensive care

A team of researchers has developed and patented a solution to improve the characterization of physiological state changes and more precisely the respiratory state of ventilated patients in anaesthesia-intensive care. The invention proposes to detect and predict in quantitative and not necessarily direct changes in respiratory status using functional signals (detected by sensors such as EEG, ECG, EMG, EEG electrode) instead of respiratory volume. Several algorithms for respiratory signals and modes are used.

Engineered detection of respiratory distress
Diagnostic with responsiveness to external control
Adaptation of the respiratory frequency

Diagram for changing parameters (flow, tidal volume, frequency, etc.)

Added value of the invention

- Disruptive and "first-of-its-kind" solution: other solutions can be found elsewhere, but none have been objectively validated.
- Scientifically validated: results are known, predictive for objective application of known respiratory modes.
- Mechanical home and hospital ventilation.
- Personalized treatment approach: individualized and of ongoing learning capacity.
- Integrative data-mining approach: integration of physiological state, breathing in better understanding of dyspnea, and the consequences of dyspnea on other vital functions.
- Patient Protected.

Avenue MA 1110
80000 Lille
France

Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)

TRL : 2

NASOFLORE

Technology matured by



Nasal microflora: A probiotic solution to prevent nasal colonization of MRSAs

prevention

microbiote

probiotic

NASOFLORE is a **probiotic product** composed of two commensal **nose microbiome strains** that prevents nasal colonization by S aureus, including multi resistant MRSA strains.

Prevention the presence of S aureus in :

- Patients undergoing **joint replacement surgery**,
- Patients under **hemodialysis**,
- Children and adults with **chronic skin** and **soft tissue infections**,
- Healthcare and maintenance personnel in hospitals, care institutions, rehabilitation centers, or nursing homes,
- Community living settings, where small outbreaks (" are common and have a devastating impact on operational activities (armed forces, firefighters, high level athletes)

Key advantages :

Easy to produce, Stable product, Long storage, Stability of nasal microbiota...



Alliance Opportunity : Licensing

IP : Patent (>5 years)

TRL : 3

MEDTECH SURGERY



SUGAR

SUGAR for SUTuring Guided by Augmented Reality

Technology matured by



Surgery

Mixed reality

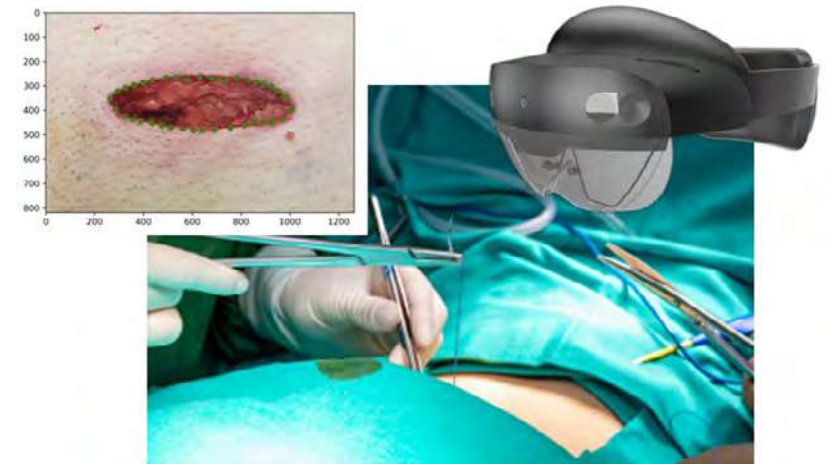
Training

It is a **digital surgical assistance solution** for wound suturing.

It makes it possible to **detect, identify** and **characterize** wounds to guide the surgical gesture by relying on **artificial intelligence** and mixed reality processes.

It is particularly aimed at nursing care **training organizations**,

The solution will also allow isolated workers to practice the surgical act in an assisted manner independently.



Alliance Opportunity : Licensing

IP : Software

TRL : 5



MEDTECH TISSUE ENGINEERING



CSM MATRIX

3D scaffolds for cell culture, cell therapy and tissue engineering

Technology matured by



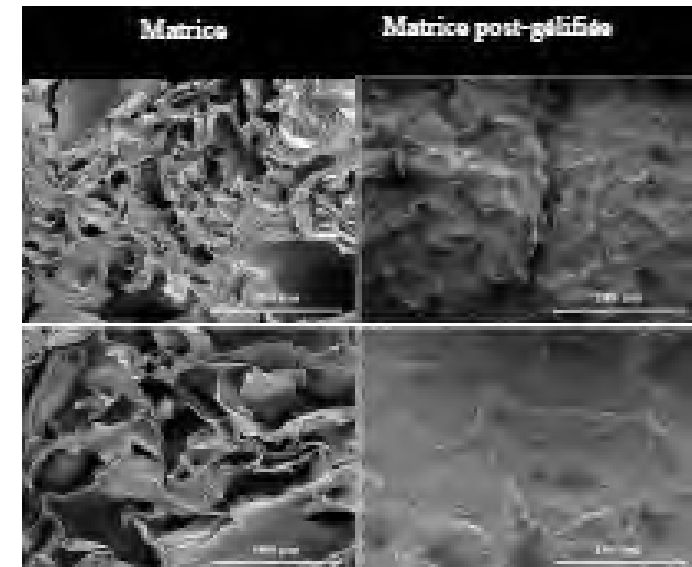
Tissue engineering

Cell culture

Biodegradable

3D scaffold made of ultrapure biopolymers available in **GMP grade**

- **Controlled architecture** (Pore size between 0,2 and 400 μ m - Porous volume: 60 to 98% of total volume)
- Improved mechanical properties and Production process **without chemical synthesis steps**
- Easy cell seeding / Handling
- **Excellent cell viability** & optimized cell functions
- Improved mesenchymal stem cells paracrine activity
- High biocompatibility & angiogenic properties
- Suitable for in vitro & in vivo applications Applications: **3D cell culture/therapy, Cellular tests, Tissue engineering**



Alliance Opportunity :

IP : Patent (>5 years)

TRL : 4



MEDTECH UROLOGY



Technology matured by



Development of a non invasive, non adhesive male urinary incontinence Medical Device

Male Urinary Incontinence

Penile Health

Eldery People

Male urinary incontinence manifests itself in several forms and affects a large audience which, contrary to popular belief, is not made up solely of elderly people.

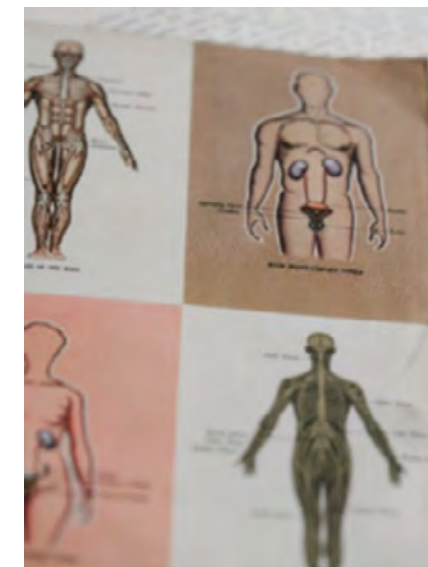
Penile health is one of the most used/commercialized medical device to tackle male urinary incontinence, but it suffers from important drawbacks:

- Skin irritation and potential infections
- Hard to install/reinstall during the day

It aims to develop a medical device solution that :

- **Is non-invasive and non-adhesive**
- **Is convenient to install and adjust during the day**
- **Prevents leakage during miction**

A patent application protecting the technology has been filed on January 2022.



Alliance Opportunity : Co Development ; Licensing

IP : Patent (<5 years)

TRL : 4

MEDTECH UROLOGY



UROLOC

Provides 3D niches for cell-growth that mimic natural acini

Technology matured by



microfluidic chip

real-time quantitative assay

liquid biopsies

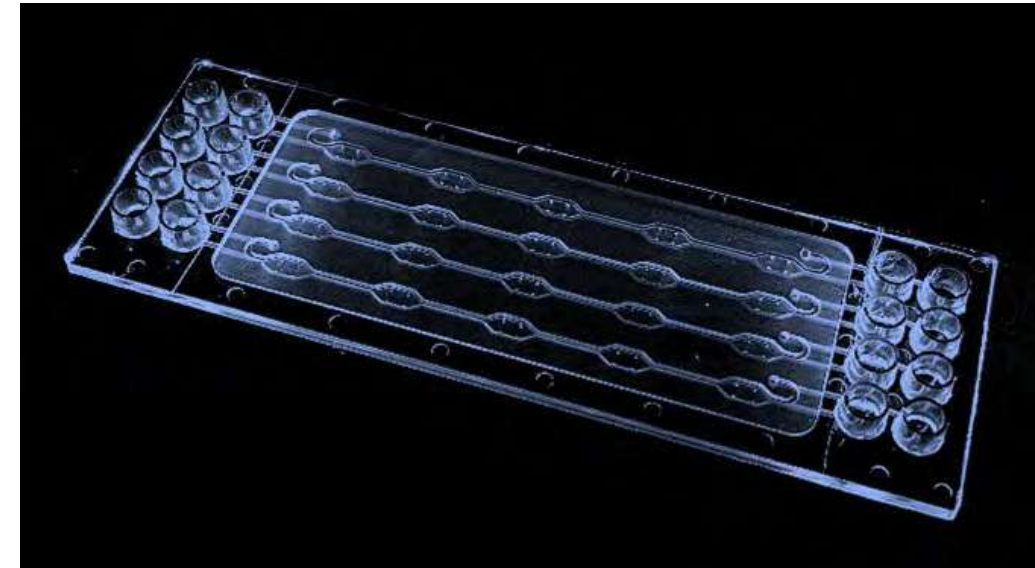
The 3D niches are of **similar anatomical dimensions to natural acini**.

UROLOC provides **real-time analysis of the fluids** secreted by the small number of cells growing in the 3D niches.

This quantitative “liquid biopsy” is a secretome analysis of the function of cells.

UROLOC has the **sensitivity for:**

- **Detection of small numbers of cancerous cells** in patient’s samples,
- Measuring **responses of patient’s cells to medication regimes** (e.g. planning therapies)
- Measuring cell **responses to toxins** (delivered either in-air or in-liquid).



Alliance Opportunity : Licensing

IP : Patent (>5 years)

TRL : 3



Nicolas LAMOUREUX
MEDTECH Alliance Manager
nicolas.lamoureux@satt.fr
+33 764 183 636



RÉSEAU SATT