



Bridging borders in innovation

XarSMART
VI Accelerator Meeting Point



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Bridging borders in innovation

28th May 2026, 9h to 13:30h
Biblioteca de Bellvitge

9:00 - 9:15 h	Institutional opening
9:15 - 10:00 h	What we have built
10:00 - 11:00 h	XarSMART projects - Pitch Deck Dr. Jaime Aboal ODISEA Dr. Rafael Moreno THOR Dr. Raquel Cumeras METAspread Dr. Fernando Fernández Hero Beats
11:00 - 12:00 h	Coffee Break & Speed Dating
12:00 - 12:15 h	What is yet to come
12:15 - 13:15 h	“Comunicació amb impacte” by Jordi Gràcia
13:15 - 13:30 h	Closure

XarSMART PROJECTS One Pagers

For further information,
you can contact us directly at:

✉ innovacio@idibell.cat

☎ (+34) 93 607 38 00 Ext. 3781



ODISEA

A digital operating system for critical patients



TEAM:

Dr. Jaime Aboal (CEO) Cardiology physician, expert in acute care. **Dr. Rafel Ramos** (CSO) Primary care physician, expert in research. **Jacobo Aboal** (CTO) Engineer. **Marina Esquerro** (CCO) Biotechnology, biocomputer. A project from IDIBGI.

Unmet Need

Life-threatening emergencies, such as myocardial infarctions, strokes, and major trauma, occur with high frequency and extreme urgency, incurring massive healthcare costs. However, the primary bottleneck in saving lives is "broken coordination." Critical care currently relies on outdated communication systems—phone calls, handwritten notes, and informal verbal updates—which lead to disconnected stakeholders, fragmented data, and dangerous delays in sequential activation.

Technology

To address these inefficiencies, this integrated technological platform streamlines the entire emergency response through four key pillars. It enables **Remote Diagnosis** via real-time ECG and imaging transmission for immediate expert decision-making, and utilizes **Geolocation** for live patient tracking to ensure early cath lab activation. Furthermore, the system incorporates **Built-in Clinical Guidance** with native disease-specific protocols

and **Operational Analytics** that automatically track KPIs and timelines to drive continuous system improvement.

Market Opportunity

→ PREVALENCE

- **7.0 + M citizens worldwide are affected by IBD. >1% worldwide prevalence** within next decade.
- **Up to 40% of patients abandon therapy** due to loss of response.
- High per-patient cost of care.

→ MARKET

- **IBD drugs market** is expected to reach **35.2 B € in 2031 (CAGR 4.7% from 2022 to 2030)**.
- **Biological therapies hold more than 60% of the IBD market share.**
- **We hold a strong IP portfolio** (4 patents).

Roadmap



THOR

Switchable CAR for Cancer Treatment

TEAM:

Led by **Dr. Rafael Moreno** (PI, ICO-IDIBELL) and **Ramón Alemany** (KOL), with **Dr. Carla Pérez** as Lead Researcher and co-inventor, supported by **IDIBELL Innovation and Tech Transfer** units.



Unmet Need

Global cancer burden continues to escalate, with approximately 20 million new cases recorded in 2022 and a projected 77% increase in incidence by 2050. While Chimeric Antigen Receptor (CAR) T-cell therapies have revolutionized the treatment of hematologic malignancies, significant challenges restrict their clinical utility. Conventional CAR-T treatments are currently hindered by slow and high-cost patient-specific manufacturing, vulnerability to antigen escape due to fixed single-antigen targeting, and severe safety risks resulting from the lack of external control mechanism.

Technology

THOR is a modular UniCAR-T platform that decouples antigen recognition from T-cell activation through interchangeable “bridge” molecules or switches. This “plug-and-play” architecture utilizes a single universal cellular product to address multiple therapeutic targets, providing significant clinical and industrial advantages:

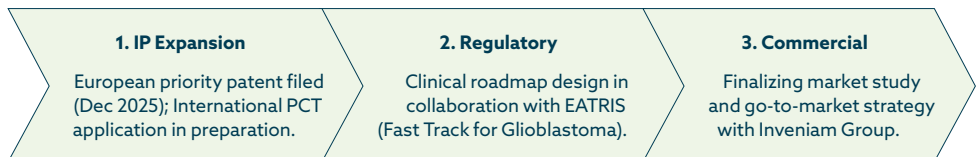
- 1) Precise external control of T-cell activity through dosable switch molecules;
- 2) Rapid adaptability to antigen escape and tumor evolution without requiring new cell manufacturing cycles;
- 3) Faster and cheaper manufacturing processes that reduce the treatment burden on healthcare systems and improve patient accessibility.

Market Opportunity

The THOR platform targets a significant commercial opportunity across four primary high-impact indications: Glioblastoma, Prostate Cancer, B-cell malignancies, and Auto-immune diseases, representing a cumulative Total Addressable Market (TAM) of \$190B.

Roadmap

The THOR development strategy is centered on robust IP consolidation and clinical readiness.



METAspread

A Urine Test for Colorectal Cancer Metastasis



TEAM:

Lead: **Raquel Cumeras**, (IRB Cat Sud) PhD [clinical metabolomics, sensors and patents] Core team: **Maria Llambrich**, PhD; **Pilar Cervelló**; **Laia Fortuny** [biochemistry, data science and biotechnology] Clinical/IVD advisors: **Josep Gumà**, MD PhD, and **Sergi Gassó**, PhD [oncology, immunoassays and IVD].



Unmet Need

Metastatic disease is the clinical & economic turning point in colorectal cancer (CRC)

- Up to 30% of patients present metastasis at initial diagnosis.
- Up to 50% of all colorectal cancer patients will develop metastases.
- Current follow-up relies on invasive, costly, or low-frequency procedures.

Technology

SOLUTION

- Detects 3 urinary metabolites associated with CRC metastasis.
- Designed for medical-office use.

The METAspread test: detect early, fight stronger.

STATUS / IP

- **TRL 4:** preclinical validation ongoing.
- Patent family **WO 2025/157843 A1** with PCT + extension strategy.

- FTO positive.
- Preliminary regulatory roadmap.
- Value proposition validation analysis.
- Customizing monoclonal antibodies.

Market Opportunity

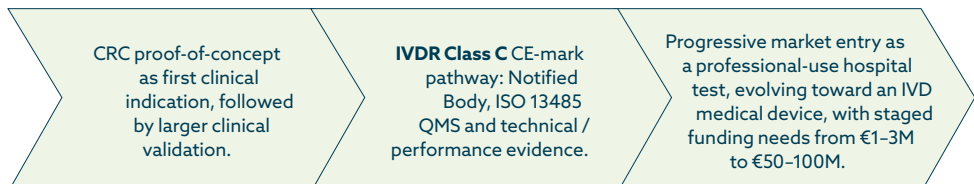
→ MARKET

- \$36 billion diagnostic CRC by 2034
~9% CAGR
- Market drivers positive, mainly by aging population, changes in lifestyles, and a greater emphasis on prevention.

→ COMPETITORS

- 4 segments: stool-based tests, liquid biopsy (21 identified), colonoscopy and medical imaging.
- High competition in blood liquid biopsy; opportunity in urine-based testing.

Roadmap



Hero Beats

Therapy in your pocket

TEAM:

Psychoneurobiology of eating disorders and addictive behaviors

PI: Dr. Susana Jiménez-Murcia, Dr. Fernando Fernández,
 Dr. Lucero Munguía, Dr. Isabel M. Baenas, Dr. Lucía Camacho,
 Dr. Anahi Gaspar, Dr. Mónica Gómez, Dr. Laura Moragas.

A project from IDIBELL.



Unmet Need

Impulsive-compulsive spectrum disorders (ICSDs) represent a great challenge for mental health professionals, as they are present in several psychopathologies, such as behavioural addictions (BA), like gambling disorder or gaming addiction, and eating disorders (ED), like bulimia nervosa and binge eating disorder. According to empirical evidence, such patients show a lack of strategies to cope with strong emotional states and tend to show **high relapse and dropout rates** from traditional therapies.

Technology

Hero Beats is a Digital Serious Game that works as a **complement to standard CBT** in ICSDs. By means of a **biosensor** connected to the app, patients receive feedback on the heart rate variability, training in the identification of emotional states that can alter this physiological measure.

To date, it has been successfully implemented in 50 patients with ICSDs, showing a reduction in relapse by combining

CBT and Hero Beats and increasing adherence to treatment up to 85%.

Market Opportunity

→ PREVALENCE

With an initial focus in gambling and gaming addictions and EDs among the different ICSDs, they represent between 1-3% of the global population.

→ MARKET

No clinically validated serious games in the market for ICSDs. Solution applicable to well-being and stress management.



Roadmap

	2023	2024	2025	2026
Product development		MVP Development	Final product version development	
Clinical Validation		Clinical validation at HUB	Multicentric validation at HUB	
Regulatory Strategy			Regulatory roadmap	CE Mark

Heptammune

A first-in-class biologic immunomodulator against Inflammatory Bowel Disease

TEAM:

Scientific: **J.M. Aran** (PI, IDIBELL), **I. Serrano, A. Luque**.
Regulatory, Drug Development & Clinical: **N. Grosios, Y. van Nuland, J. Guardiola**. Management: **D. Huguet** (DEAC Solutions), IDIBELL
Innovation & Business Development Unit.



Unmet Need

- **Inflammatory Bowel Disease (IBD)** is the 3rd major autoimmune disease worldwide. It refers to two chronic inflammatory conditions of the gastrointestinal tract: Crohn's disease and Ulcerative Colitis.
- Both are lifelong, relapsing disorders of **unknown etiology** and **no cure**.
- ALL current IBD drugs have 3 main limitations: **limited efficacy, relevant adverse events, low patient adherence**, and fall short of expected complete remission.

Technology

- **Heptammune** is a **naturally occurring** immunomodulatory blood protein analogue.
- **Heptammune** has a novel mechanism of action as a **"smart" immunomodulator** (not immunosuppressor) able to **"reprogram"** innate immune cells to fight maladaptive immune responses and to **"resolve"** inflammation.

→ **Heptammune** is smaller than a MoAb and can be produced in prokaryotic or eukaryotic systems as a scalable **recombinant protein**.

→ Monthly **subcutaneous administration**. Better outcomes than SoC drugs and improved quality of life.

Market Opportunity

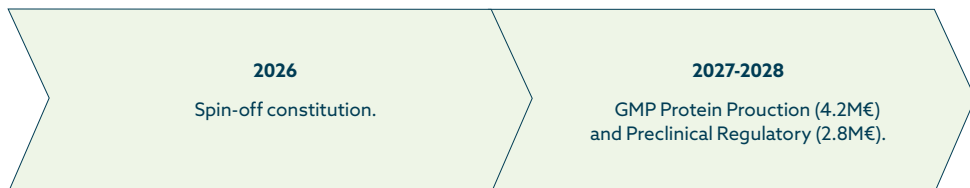
→ PREVALENCE

- **7.0 + M citizens worldwide are affected by IBD. >1% worldwide prevalence** within next decade.
- **Up to 40% of patients abandon therapy** due to loss of response.
- High per-patient cost of care.

→ MARKET

- **IBD drugs market** is expected to reach **35.2 B € in 2031 (CAGR 4.7% from 2022 to 2030)**.
- **Biological therapies hold more than 60% of the IBD market share**.
- **We hold a strong IP portfolio** (4 patents).

Roadmap



FLEA-ChIP

A differentiated epigenetic platform for challenging clinical samples



TEAM:

Sílvia Pérez-Lluch (Staff Scientist, Inventor & Project Leader) **Roderic Guigó** (Group Leader, Scientific Advisor), **Marina Ruiz-Romero** (Researcher, Inventor & Entrepreneur, Researcher), **Diana Domínguez** (New Ventures Manager, Technology Transfer Advisor) and **Zighereda Ogbah** (Laboratory Technician Collaborator). A project from CRG.

Unmet Need

The development of epigenetic diagnostic and apigenetic drugs is constrained by the **lack of commercial solutions** capable of profiling histone modifications from scarce, fragmented **clinical samples**.

Technology

FLEA-ChIP offers histone marks profiling via a **fast, affordable and highly sensitive** approach -effective on **scarce, fragmented clinical samples**, including liquid biopsies. This new level of actionable information will accelerate development of more **precise diagnostics**, enhanced patient stratification and discovery of more **personalized treatment** leading to reduced disease burden as well as side effects.

FLEA-ChIP's unique design enables epigenetic profiling from ultra-low-input and degraded samples—including material derived from necrotic tumors and liquid biopsies—because, unlike existing technologies, it does not require additional sample fragmentation. In addition, FLEA-ChIP is

designed to process multiple biospecimens in parallel and to profile **multiple epigenetic marks**, reducing time and cost, minimizing technical variability, and enabling more **robust comparisons** across samples.

Market Opportunity

→ PREVALENCE

FLEA-ChIP has **pan-cancer** applicability, with an initial serviceable market in cancers where **liquid biopsy monitoring** has high clinical value: lung, colorectal, breast, prostate, ovarian, pancreatic, and other high-burden or high-mortality tumors.

→ MARKET

We estimate the low-input Epigenomics market **TAM** at **\$1-2 B** with a **15-20% CAGR**. **SAM** is estimated at **\$0.3 to \$0.5 B** and assuming an obtainable market share of 1%, the **SOM** is estimated between **\$3 to \$5 M a year**.

Roadmap



LiverColor

TEAM:

Gemma Piella, Universitat Pompeu Fabra, **Concepción Gómez Gavara**, Hospital Universitari Vall d'Hebron, **Edson Plasencia**, Universitat Pompeu Fabra and **Nicolau Farré**, IT Freelance.



Unmet Need

The subjective and inefficient assessment of hepatic steatosis (fatty liver) in donor organs. Hepatic steatosis is the leading cause of donor liver rejection, yet its assessment currently relies on subjective and error-prone visual inspection by surgeons. This diagnostic limitation leads to an alarming waste of viable organs, as roughly 50% of discarded livers could actually be suitable for transplantation.

Technology

LiverColor, is a web platform and mobile application designed to assess hepatic steatosis through a non-invasive, fast, and user-friendly process. By leveraging artificial intelligence and image analysis, the technology accurately quantifies liver fat using just a simple photograph.

Market Opportunity

→ PREVALENCE

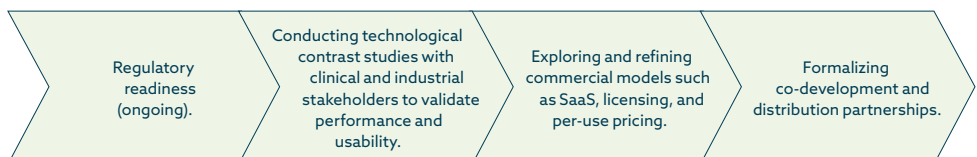
- 200 annual transplants in Catalonia
- 1300 annual transplants in Spain
- 32000 annual transplants

→ MARKET

- 4 transplant centers in Catalonia
- 20 transplant centers in Spain
- 8000 transplant centers worldwide

Roadmap

The roadmap involves transitioning from a research prototype to a certified Medical Device:



FORESEE

TEAM:

CEO and Co-founder: **Laura Becerra-Fajardo**, PhD

CSO and Co-founder: Prof. **Antoni Ivorra**

Chief of Strategy and Co-founder: **Javier Colás** (Medtronic)

A project from UPF.



Unmet Need

Chronic diseases account for around 80% of healthcare costs, and with nearly 30% of the European population expected to be over 65 by 2050, the burden on healthcare systems is rapidly increasing. These conditions drive millions of hospitalizations every year, many of which are costly and, in many cases, preventable with earlier intervention. Despite the adoption of remote monitoring, current solutions rely on limited and indirect data, failing to detect deterioration in time. Our first indication is heart failure, with more than 15 million patients in Europe and ~45 B€ annual costs.

Technology

The core innovation is a miniaturized implant powered by an external unit using the human body as an electrical conductor of energy, removing the need for bulky batteries and enabling long-term operation. Unlike competitors, we can obtain a very thin implant that can capture multiple

physiological parameters simultaneously at their origin, providing a daily, complete view of the patient's status.

Market Opportunity

→ PREVALENCE

For heart failure (our initial indication), 21 M patients in Europe and USA.

→ MARKET

Considering a market share of 2.8%, by 2035 our potential target market will be 510 M€.

Roadmap

With support from the **European Innovation Council (EIC) Transition grant (2.5 M€)**, we are currently in preclinical development and we are raising funds to do the clinical development and first-in-human trials.

GAIN-EC

Levaraging Genomics and AI for Non-Invasive Detection of Endometrial Cancer, a Urine Sample Solution

TEAM:

Laura Costas (PI), Irene Onieva, Sònia Paytubi, Laia Alemany. A project from IDIBELL.



Unmet Need

Current diagnostic pathways for endometrial cancer lack accuracy, leading to many unnecessary invasive procedures and inconclusive results. This creates delays, increases healthcare costs, and adds significant burden on patients. A major unmet need is accessible molecular classification to properly stratify patient risk.

Technology

Our solution is a non-invasive diagnostic tool that detects endometrial cancer and determines its molecular subtype through the analysis of somatic mutations and automated cytological imaging from urine samples. Beyond a simple positive/negative result, it identifies the four molecular groups defined by ESMO guidelines (POLE-mutated, MMR-deficient, TP53 wild-type, TP53-mutated). This enables earlier, more precise clinical decision-making, supports ongoing disease monitoring, and facilitates more personalized treatment strategies.

Market Opportunity

→ PREVALENCE

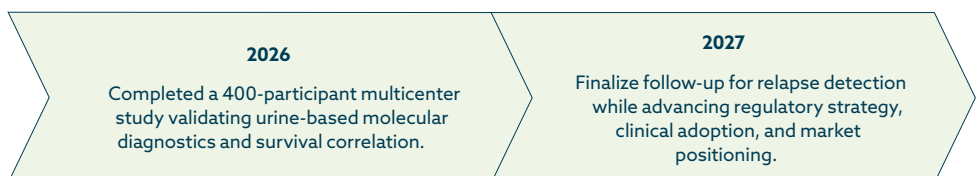
The current TAM is based on women with postmenopausal bleeding, around 55,370 women/year in Spain.

→ MARKET

Primary target segment (~10%) are biopsy fails (~5,500/year). Secondary segments include limited access to gynecologists. Tertiary use involve post-treatment molecular monitoring.



Roadmap



AIINANE

Smarter Preoperative Assessment for Safer Surgery

TEAM:

Ancor Serrano (founder, anaesthesiologist),

Roger Añor (CTO and co-founder).

A project from IDIBELL and HUB.



Unmet Need

Inefficient preoperative pathways create avoidable cancellations, wasted staff time, unnecessary visits and rising hospital costs. Anaesthesia teams are understaffed, while patients face delays and poor coordination. Hospitals need a standardized, scalable way to assess surgical risk earlier and streamline surgery preparation.

Technology

AIINANE is an on-premise SaMD platform that integrates hospital data, patient-reported information and validated perioperative risk models to generate structured preoperative reports. Its explainable rule-based engine combines RPA, symbolic AI and workflow logic to support clinical decision-making, detect discrepancies and help hospitals identify which patients require specialist assessment, reducing unnecessary visits, avoidable costs and pressure on anaesthesia teams. Developed under MDR principles, it is designed for safe integration into real hospital environments.

Market Opportunity

→ PREVALENCE

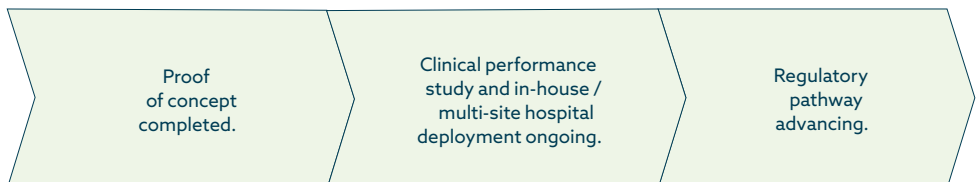
For all elective adult surgery patients needing preoperative assessment across surgical specialties.

→ MARKET

Hospitals seeking measurable efficiency gains, lower avoidable costs and better surgical flow management.



Roadmap



Spinertial

Guided Cervical Platform



TEAM:

Andoni Carrasco: CEO (clinical, commercialization), **Alejandro Portela:** CTO (hardware, innovation), **Widy Medina:** CPO (product strategy, manufacture), **Xavier Marimon Serra:** CSO (software, data science, AI). A project from UIC.



Unmet Need

Neck pain is one of the most common musculoskeletal problems associated with sedentary, screen-based work. Existing solutions include passive ergonomics or generic wellness content. What is missing is a structured, repeatable intervention that users can easily integrate into their daily routine.

Technology

Spinertial (patented USA, ES, EU) is a modular platform that combines a physical cervical exercise module with adjustable resistance and a digital layer. It features a workplace station (Spinertial 4Work) for institutional deployment, a compact version for home use (Spinertial Home) to ensure continuity, and a future app for tracking usage history, progression, and guided programs.

Market Opportunity

→ PREVALENCE

There is up to a 70% lifetime prevalence of neck pain.

→ MARKET

Spinertial Home: User of rehabilitation centers. Spinertial 4Work: screen-exposed workers (corporate offices, public administrations, universities). B2C sales (Spinertial Home) and B2B (Spinertial 4Work).



Roadmap

0-12 months

Validate pilots (like 4Work pilots), refine the product's mechanics and offering, and secure the first reference deployments.

12-24 months

Scale partnerships in the workplace, launch the Spinertial Home version, and activate recurring digital revenue through multi-channel scaling.

CONAN

Controlled-replication Oncolytic Adenovirus

TEAM:

Led by **Dr. Rafael Moreno** (PI, ICO-IDIBELL) and **Ramón Alemany** (KOL), supported by **IDIBELL Innovation and Tech Transfer** units.



Unmet Need

CONAN is an innovative gene therapy system designed to enhance the effectiveness of CELYVIR, an existing therapy that combines oncolytic adenoviruses (like ICOVIR5) with MSCs for treating solid tumours. While CELYVIR has shown potential in clinical trials, its efficacy is limited because the virus often replicates and kills the carrier MSCs before they can successfully reach and accumulate in the tumour site. This results in insufficient virus delivery to the tumor.

Technology

CONAN is an innovative "replication-at-will" system designed to transform spontaneous viral activity into an externally controlled process. By introducing a precision "switch" mechanism (TetOn/TetOff control), the system effectively delays viral activation, optimizing carrier cell homing. Replication is triggered externally only upon tumour infiltration, maximizing the therapeutic load delivered for targeted cancer cell elimination.

Market Opportunity

→ PREVALENCE

In Spain, the net 5-year cancer survival rate after first and second-line treatments is 55%, with a current incidence of 280,000 new cases diagnosed in 2022.

→ MARKET

- Cancer patients.
- Public health system.
- The leading companies in oncolytic adenovirus.

Roadmap

The system is protected by an international PCT patent (PCT/EP2025/058307).

The technology is currently at **TRL 4**, with successful validation in vitro and in vivo lung adenocarcinoma models.

The next phase involves completing preclinical regulatory activities to reach **TRL 5** and preparing the necessary documentation (IMPd) for the AEMPS to initiate **Phase I clinical trials**.

Business Model:
Licensing the technology to specialized biotechnology or pharmaceutical companies for large-scale production and clinical validation.

VesicleX

Extracellular Vesicle-Based Therapy to Prevent Postoperative Recurrence in Crohn's Disease

TEAM:

Carolina Serena (PI, IRB Cat Sud), **Josep Manyé** (PI, IGTP), **Diandra Monfort** (IRB Cat Sud), **Laura Clua** (IRB Cat Sud), **Iris Ginés Mir** (IRB Cat Sud), **Laia Cabré** (IRB Cat Sud), **Aleidis Caro** (HJ23, IRB Cat Sud), **Eugeni Domènec** (IGTP).



Unmet Need

Crohn's disease shows high postoperative recurrence rates (up to 70%), with no effective therapies to prevent relapse. Patients often undergo repeated surgeries, driving significant clinical and economic burden.

There is a critical unmet need for therapies targeting early disease drivers. Current treatments fail to address mesenteric immunometabolic dysfunction (creeping fat), a key mechanism of recurrence.

Technology

VesicleX is a first-in-class extracellular vesicle (EV)-based therapy derived from biologic-preconditioned adipose-derived mesenchymal stem cells, enhancing their immunomodulatory capacity. EVs are embedded in a biocompatible scaffold enabling local, sustained delivery at the site of intestinal inflammation.

This approach overcomes key limitations of current therapies by combining targeted

delivery, reduced systemic exposure, and modulation of the immune-metabolic niche driving disease recurrence. Its translational potential is supported by human ex vivo and preclinical data.

Market Opportunity

→ PREVALENCE

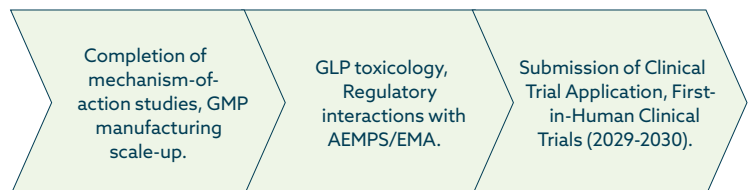
Crohn's disease affects approximately 1 in 300 individuals in Europe, with increasing incidence worldwide. Post-surgical recurrence remains a major clinical challenge.

→ MARKET

The global inflammatory bowel disease market exceeds €20 billion and is rapidly expanding, driven by high unmet clinical need. Current therapies fail to prevent postoperative recurrence, creating a clear gap for more effective and targeted solutions.

Roadmap

European Patent application submitted (No. 26382060.7); covering composition, manufacturing process and therapeutic application of VesicleX



Queratest

TEAM:

Marta Mas (PI, ICMAB), **Carne Martínez**, Expert in Biosensors (CNM), **Maria Ortiz**, PhD. Candidate in chemistry (ICMAB), **Diego Gutiérrez**, CTO (ICMAB), **Dra Noelia Sabater**, Specialist in Cornea (H. Sant Pau) and Advisor **Sergi Gassó**, expert IVD.



Unmet Need

Infectious Keratitis is a painful and potentially sight-threatening inflammation of the cornea. Its diagnosis currently relies on:

- Difficulty in distinguishing between the different pathogens that causes the infections (fungal or bacterial).
- Delayed lab-based methods (~2 weeks). Culture as gold standard.
- LoD in the range of mM-nM in for commercial lateral flow test.

Technology

Easy-to-use technology with a Lower Limit of detection (LoD) than that of the lateral flow assays (LFA) currently on the market. Technology focused on the detection of fungal keratitis. Adaptable for identifying other pathogens.

Strength 1: Sample type: tear fluid, eliminating the need for corneal scraping. Non-invasive.

Strength 2: Point-of-Care format. Electrical readout.

Market Opportunity

→ PREVALENCE

Prevalence of Keratitis: 1,5 M of people around the world.

Incidence in India: higher than 100 patients/100k habitants.

→ MARKET

The global fungal keratitis treatment market size was valued at 928.9 M\$ in 2023 and it is expected to grow at a CAGR of 7.0% from 2024 to 2030. (Source Grand View Research).



Roadmap



Photopharmacology for high precision drugs

TEAM:

Pr. Amadeu Llebaria (IQAC-CSIC), **Dr Xavier Rovira** (IQAC-CSIC) and **Pedro de la Villa, PhD** (Universidad de Alcalá), **Pr. Román Blanco, MD** (Universidad de Alcalá).



Unmet Need

Current medications lack precision resulting in **systemic adverse effects** that limit their therapeutic value. This contributes to lower prescription or treatment discontinuation from physicians, and poor patient adherence, generating a significant health burden, especially in **chronic conditions** requiring long-term treatment.

Technology

We have developed drugs whose activity can be switched on or off using light. This technology, known as photopharmacology, offers unmatched **control** over the **timing**, **location** and **intensity** of the drug action. This provides a novel approach for highly targeted and **personalized therapies** with improved **safety and efficacy** compared to current therapeutic options. We have developed different assets (TLR4) addressing diseases across multiple therapeutic areas including **ophthalmology** (e.g. glaucoma), and **dermatology** (e.g. psoriasis/atopic dermatitis).

Market Opportunity

→ PREVALENCE

Target indications include:

- Glaucoma: >81M people globally
- Psoriasis: 3% of global population

→ MARKET

- Glaucoma market: \$7-10 billion
- Psoriasis market: \$25-30 billion

Precision medicine market >10% CAGR

→ PCTs Filed

Glaucoma



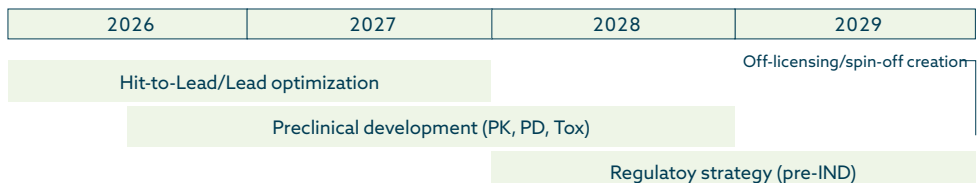
Psoriasis



→ +INFO



Roadmap



First-in-class TREX2 inhibitors for inflammatory skin diseases



TEAM:

Scientific Team: **Prof. Concepció Soler**, PI (TREX2 target & immunology) **Prof. Rodolfo Lavilla** (Med Chem) **Dr. Ouldouz Ghashghaei** (Org Chem) **Prof. Francisco Ciruela** (Pharmacology) **Dr. Jordi Juárez-Jiménez** (Comp Chem) – Clinical Dermatologist: **Dr. Jaume Notario**, **Dr. Eulàlia Baselga**, **Montserrat Bofill** – Advisors: **Dr. Joan Albertí** (DMPK), **Dr. Marc Martinell** (Mentor), **Dr. Andrés G. Fernández** (Mentor), **Dr. Sara Preciado, MBA** – Business & Innovation CEO. A project from IDIBELL.

Unmet Need

Psoriasis represents one of the most prevalent chronic inflammatory skin conditions globally, affecting millions and placing significant burdens on patient quality of life and healthcare systems. Current treatments, mainly biologics and systemic immunosuppressants, present substantial challenges due to their high costs, adverse effects, and limited patient accessibility. There is an urgent need for safer, more effective, and affordable therapeutic options that address the underlying pathology of psoriasis without compromising immune function.

Technology

We are addressing this significant unmet medical need with a pioneering therapeutic innovation: first-in-class small-molecule inhibitors targeting TREX2, a keratinocyte-specific enzyme critical in psoriasis pathology. Unlike traditional treatments that broadly suppress immune functions, our TREX2 inhibitors selectively target keratinocyte dysfunction, breaking the inflammatory

cycle at its source. This novel mechanism of action has demonstrated potent efficacy, high selectivity, and minimal side effects in extensive preclinical studies.

Market Opportunity

→ PREVALENCE

~2-3% of the global population
(~125 million patients)

→ MARKET

>€20B, with continued growth driven by biologics

Roadmap



DRYMELT

Patented Technology for Sustainable Dermocosmetic Delivery

TEAM:

Roman A Perez, PhD – Founder and researcher, **Begoña M Bosch, PhD** – Co-founder and researcher, **Laura Silva** – Cosmetic product developer, **Elisa Suñer** – Business mentor. A project from UIC.



Unmet Need

The dermocosmetic industry faces a triple crisis:

- **Regulatory:** Ineffective traditional packaging and upcoming EU microplastic bans.
- **Clinical:** Rapid oxidation of actives (Vitamin C) in open glass ampoules.
- **Dermatological:** Skin irritation caused by preservatives in water-based formulas.

Technology

Drymelt is a disruptive, water-soluble solid matrix (Patent WO/2023/118255) that merges formula and packaging into a single 100% Zero-Waste unit.

- **Anhydrous:** Eliminates water, plastics, and preservatives.
- **Precision:** Particle systems for controlled release and maximum active stability.
- **Zero-Waste:** 100% biodegradable; formula and packaging dissolve upon application.

Market Opportunity

→ PREVALENCE

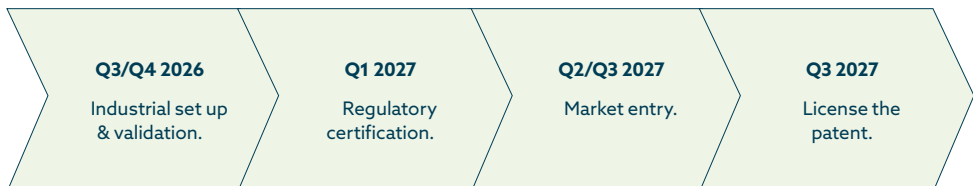
- Sensitive skin:** 70% population
- Regulatory:** EU microplastic ban
- Active oxidation:** 50% efficacy lost

→ MARKET

- Global market:** \$130B industry by 2030
- High profit:** 70% margins
- B2B Focus:** scalable innovation



Roadmap



CandiRes

First-in-class precision therapy for Candida superbugs

TEAM:

Prof. Toni Gabaldón — PI; Group Leader at IRB Barcelona and BSC-CNS; CIBER-INFECT; ICREA Professor. **Dr. Juan Carlos Núñez Rodríguez** — Project Leader; Postdoctoral Fellow and Scientific Entrepreneur, IRB Barcelona and BSC-CNS. **Israel Ramos** — Drug Screening Coordinator, IRB Barcelona. **Dr. Alba Olivares** — Senior Technology Transfer Manager, IRB Barcelona.



Unmet Need

Invasive candidiasis is a lethal hospital-acquired infection. Drug resistant non-albicans Candida (NAC) dominate the clinical landscape and have rendered over half of current cases difficult to treat. Because the existing medical arsenal is limited to only three antifungal classes—all of which face significant hurdles regarding toxicity, resistance, and poor tissue penetration—there is an urgent market demand for a novel, safer therapeutic with a differentiated mechanism of action to restore efficacy in hospital settings.

Technology

CandiRes is pioneering a new paradigm in antifungal therapy by developing first-in-class precision medicines specifically targeting the most difficult-to-treat non-albicans Candida species. Utilizing its proprietary FungiRes screening technology, novel compounds have been identified with a unique mechanism of action (MoA) that effectively bypasses the resistance found in existing drug classes. By shifting away from traditional broad-spectrum approaches and focusing on vulnerabilities unique to mul-

tidrug-resistant strains, CandiRes offers a high-efficacy, resistance-breaking solution. This scientific breakthrough, backed by a robust development framework, positions it at the forefront of precision medicine for invasive candidiasis.

Market Opportunity

→ PREVALENCE

Invasive candidiasis affects >1.5M patients globally each year and is estimated to cause ~995,000 deaths annually. It ranks among the top ten ICU infections, with 5–7 episodes per 1,000 ICU admissions, adds 10–21 extra hospital days, 40% mortality despite treatment, and up to 70% mortality in resistant infections.

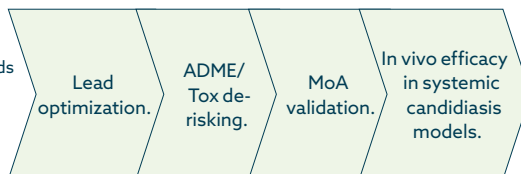
→ MARKET

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Roadmap

The roadmap focuses on

CandiRes' near-term vision is to advance its first-in-class compounds into a robust lead candidate able to meet the TPP and progress through preclinical development.



Supported by a strong track record of non-dilutive funding, CandiRes is now actively engaging future collaborators, strategic partners and investors to accelerate translational development and maximize the project's clinical and commercial potential.

Modeling disease and Cell Behavior using Organoids



TEAM:

International team of PhDs and Post-docs lead by **Dr. Jordi Guiu** (IDIBELL).

Unmet Need

Many years of successful oncological research are leading to increasing cohorts of cancer survivors. Patients treated with radiotherapy in the abdominal cavity suffer bleeding and ulceration of the intestinal mucosa and in some cases the severity of the pathology may lead to the interruption of cancer treatments. There are no available treatments, consequently there is a need of a fast and cost-effective drug screening platform to identify drugs that boost intestinal regeneration.

Technology

We postulate that patients suffering radiation-induced enteritis would benefit from therapies that enhance intestinal regeneration. Thus, improving their quality of life. For this we have generated a semi-automated imaging-based intestinal organoids **drug screening platform** to identify compounds that enhance intestinal regeneration.

Market Opportunity

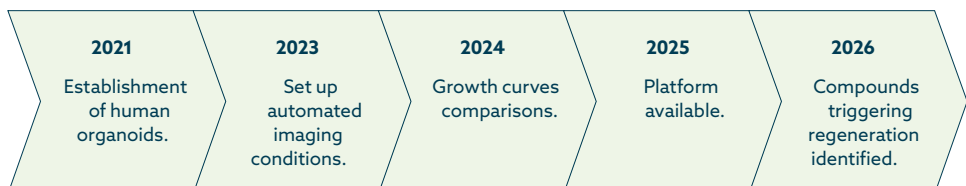
→ PREVALENCE

45.8 million cancer survivors diagnosed (last 5 years). 90% of patients treated with abdominal radiotherapy develop enteritis.

→ MARKET

No available treatments for radiation-induced enteritis.

Roadmap



Mnéme

Cognitive Stimulation for Dementia Care

TEAM:

Albert Margalef Molina (PI), **Marc Casajuana Closas** (IDIAP Jordi Gol), **Magda Aubets Macià** (IDIAP Jordi Gol), **David Verde López** (IDIAP Jordi Gol), **José Martin Solorzano** (IDIAP Jordi Gol). In collaboration with ICS, UOC, AVAN Neurology Foundation, CRE Alzheimer, Qualud, SUARA and Cuideo.



Unmet Need

Dementia cases are increasing and healthcare systems need accessible, engaging, and scalable cognitive care solutions for patients and caregivers.

Technology

Mnéme is an interactive cognitive stimulation tool designed for people with mild to moderate cognitive impairment. Through adaptable and engaging activities, it supports memory, attention, communication, and social interaction. Designed for real-world usability, Mnéme combines therapeutic value with an accessible format suitable for healthcare, community, and home-care environments, with future potential for mobile and digital platform development.

Market Opportunity

→ PREVALENCE

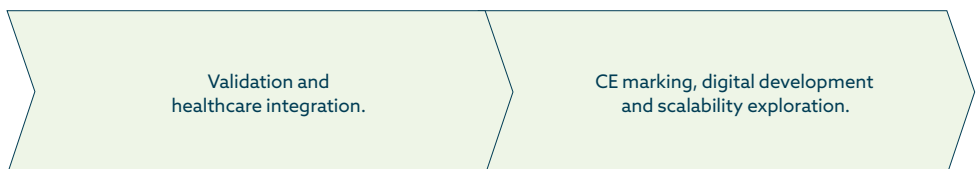
55+ million people worldwide live with dementia, including more than 800,000 people in Spain, with number continuing to rise due to population aging.

→ MARKET

Implementation across primary care, dementia clinics, long-term care, with future digital expansion potential.

Roadmap

Prototype developed and IP protected



Neurally

Smart Tape for Cranial Mapping

TEAM:

Neurally is a collaborative research lab at URV and IRB Cat Sud. The Pls are **Prof Albert Fabregat** and **Dr Vicenç Pascual**, EIR is **Myshkin Ingawale**.



Unmet Need

Brain monitoring using EEG and therapies involving TMS in neurophysiology require correct mapping of specific spots on the cranial surface. The mapping done at present is either very precise but slow, complex and expensive (Neuronavigator) or fast, affordable but imprecise and variable (Skull caps, Tape Measure).

Technology

Neurally's patented device and method ("EPlacement") is a smart electronic tape measure and interactive display interface, that guides the healthcare staff step by step, using a pre-defined set of routines for different tests and procedures, and maps the exact spots on the cranial surface, following the international 10/20 system. In a recent study, it has been verified to achieve higher staff satisfaction scores, accuracy and speed than the approximate methods.

Market Opportunity

→ PREVALENCE

300,000 EEG and TMS technologists globally, currently using alternative methods.

→ MARKET

Based on adoption rates and pricing, the market opportunity is between €100Mn to €600Mn.



Roadmap

The EPlacement device has a study and publication, and a granted EU patent. Next steps are market validation, company creation/licensing, and regulatory processes.

Pancreas regeneration team

TEAM:

Pancreas Regeneration team (IDIBELL): **Meritxell Rovira** (PI), 2 postdocs, 4 PhD students, 1 bioinformatician and one technician.

Collaborators: International and national, basic researchers and clinicians.



Unmet Need

Pancreatic pathologies:

- **Cell therapies for diabetes treatment** (human pancreatic organoids and regenerative medicine).
- Cell of origin of PDAC and Ampullary tumors: Early **biomarkers and novel therapies for pancreatic cancer and ampullary tumors.**

Technology

- Human and mouse pancreatic and ampullary organoids (healthy and tumor derived).
- Pancreatic tissue slices.
- Single Cell/Multiome and spatial transcriptomics.
- Models: Mouse, Zebrafish and human samples: modelling diabetes, pancreatic cancer, ampullary tumors.
- Drug screens in vivo (mouse and zebrafish) and in vitro (organoids).

Market Opportunity

→ PREVALENCE

- Diabetes: 500 million people worldwide suffer diabetes.
- PDAC: 3rd cause of cancer related deaths, 10% survival. Worst of all tumors. 80% of patients detected in late stages.

→ MARKET

- Diabetes market expected to grow to 36 BUSD by 2030. Cell therapy is a cure not a treatment.
- PDAC expected to grow 7.5 BUSD by 2033. Early detection biomarkers are needed.

Roadmap

In **PoC validation** phase for further development envisioning co-development with industrial partner or private equity funds.

MiCRC

TEAM:

Project lead by prof. **Toni Gabaldón**, in collaboration with: Barcelona Supercomputing Center (BSC-CNS), Institut for research in Biomedicine (IRB), Hospital Clínic - IDIBAPS and ICREA.



Unmet Need

About 160,000 people die of Colorectal cancer (CRC) in the EU yearly, and up to 50% of these lives could be saved by being diagnosed at an earlier stage. In terms of treatment cost, the difference between early and late stages of CRC is probably ten-fold (respectively 4,000 euros and 40,000 euros). This corresponds to over 3 billion EUR in healthcare budget overspent every year. Despite the proven cost-effectivity of screening campaigns, the EU is still far from reaching the objective of screening 65% of the population between 50-74 years old.

Technology

MiCRC consists of a gut microbiota test combined with AI-based classifying algorithms able to stratify patients based on their risk of CRC. Unlike other solutions, MiCRC differentiates CRC and precancerous lesions and it has been designed to be coupled to current EU screening protocols using samples already collected in Fecal immunochemical test (FIT) tubes. Implementation

of MiCRC in the screening campaigns will reduce up to 30% of current non-necessary colonoscopies while detecting with high sensitivity high risk precancerous lesions and colorectal cancer individuals, outperforming existing solutions.

Market Opportunity

→ PREVALENCE

CRC is the third most common cancer worldwide, with almost 2M new cases registered in 2022. It is also the second type of cancer with highest mortality, accounting for 0,9 M deaths in 2022.

→ MARKET

FIT-tests performed annually: 3,029,788 with Incidence (2022): 39,421 and Projected incidence 2035: 26.50%

Roadmap

MiCRC is considered IVD Medical Device Software with an AI algorithm. We are currently building on the definition of the clinical roadmap addressing the **regulatory map** and ensuring that the **AI algorithm fulfills existing requirements** for its use in clinical settings.

Oncovir

TEAM:

Dr. Juan José Rojas Expósito, Dr. Ignacio Sallent Cucurella.

A project from IDIBELL.



Unmet Need

Solid tumours represent **~90 % of all cancer cases** (~17M new/year)

Limited efficacy of current immunotherapies due to immune evasion

Colorectal cancer (CRC): 3rd most common cancer worldwide

High unmet need for therapies that **overcome tumour immune resistance**

Need for treatments that induce **durable systemic anti-tumour immunity**

Technology

VACV-ATF(N): engineered oncolytic virus based on the WR vaccinia strain

Tumour-selective replication via thymidine kinase (TK) gene deletion

ATF6(N) transgene expression induces immunogenic cell death (ICD)

ICD promotes activation of the patient's adaptive anti-tumour immune response

Dual mechanism: **direct oncolysis + immune stimulation**

Oncolytic virus created and functionally/mechanistically validated *in vitro* & *in vivo*

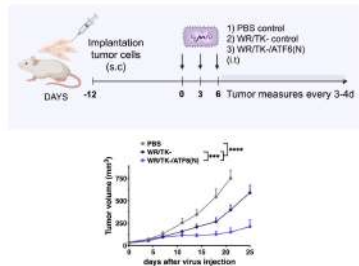
Market Opportunity

CRC therapeutics market: \$14.25B (2026), growing rapidly

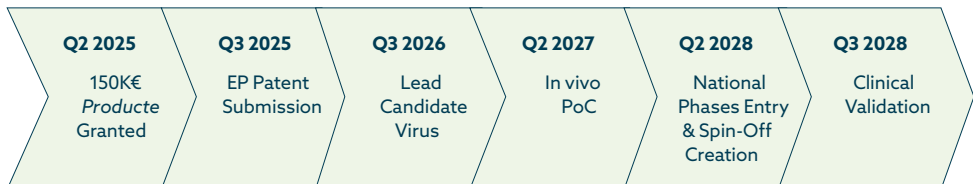
Immunotherapy market expanding (~14 % CAGR)

Platform technology expandable to other solid tumours (i.e. pancreatic cancer)

Potential for first-in-class / differentiated oncolytic immunotherapy



Roadmap



SEPI-IA

TEAM:

Maria Molina (IDIBELL). Companies: GMV, TECNALIA.



Unmet Need

Automatic lecture and interpretation of radiological computed tomography (ct) images in interstitial lung diseases and predicting prognosis.

Technology

Software to automatically analyze chest ct images in ild patients like an expert radiologist and simulating the evolution over time trained by artificial intelligence.

Market Opportunity

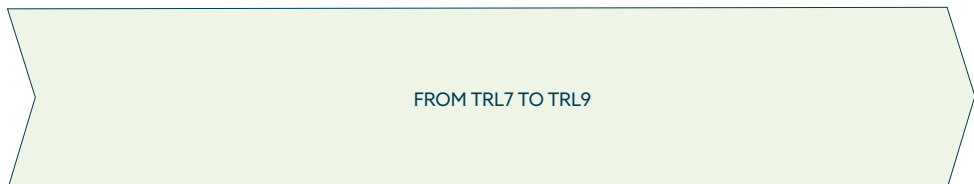
→ PREVALENCE

Rare diseases that affect globally around 1M population in Spain.

→ MARKET

Companies interested in ilds and pulmonary fibrosis. Healthcare systems.

Roadmap



AIRES

Smart Wearable for Personalised Air Quality and Respiratory Health Tracking

TEAM:

Noelia Ramírez (PI), Eduard Llobet, Xavier Blanch, Dídac Roda, Joaquín Escribano, Amalú Vasquez, Elizabet Rua, Paula Romero.
A project from IRB Cat Sud - URV.



Unmet Need

- Chronic respiratory diseases affect over **500 M people**, and air **pollution is a major trigger of exacerbations**.
- Personal exposure to air pollution is **not integrated into clinical practise**.
- AIRES is the first **integrated wearable platform that combines real-time air quality and physiological monitoring**.

Technology

- **AIRES wristband** integrates **miniaturised sensors** for particulate matter (PM) and volatile organic compounds (VOCs) with physiological monitoring (SpO₂ and respiratory rate) for real-time air quality monitoring.
- **AIRES wristband** includes **two sorbent tubes** as passive samplers for high-resolution chemical characterisation of organic pollutants.
- AIRES is managed through a dedicated **mobile app** for users and a **web app** for researchers and clinicians.

Market Opportunity

→ PREVALENCE

The respiratory digital health market, projected to reach approximately **USD 300 billion by 2028**.

→ MARKET

Digital & Occupational health, and Air Quality monitoring. Increasing demand for **personalised solutions**.



Roadmap



SamPlexer

TEAM:

Project lead by prof. **Toni Gabaldón**, **Hrant Hovannisyan**, and **Arnau Albert** from the BSC and IRB.



Unmet Need

Although genome sequencing costs have dropped, the process of sequencing library preparation is still the main operational and financial bottleneck. Current solutions for making Library Preparation more efficient are either very expensive or require significant manual work.

Technology

SamPlexer(R) is the first of its kind computational platform for making library preparation up to 90% cheaper and faster. SamPlexer(R) is easy to use and scalable, it is universal and can be used for any type of sequencing application and it can be complementary to other methods of library preparation optimization such as robotics machinery and experimental protocols.

Market Opportunity

→ MARKET

Market size of next generation sequencing is projected to reach ~\$35B by 2030, with ~20% CAGR.

Roadmap

The MVP of SamPlexer(R) is ready and we currently are **executing the go-to-market** strategy by engaging potential early adopters in academic and medical fields.

MSPredict

Personalized AI prognosis for Multiple Sclerosis

TEAM:

Pablo Naval (Neuroradiology), **Nahum Calvo** (Head of Radiology), **Pablo Arroyo** (Neurology), **Sergio Martínez** (Neurology), **Ignacio Martínez** (Biomedical Engineering), **Dimitra Vlachokosta** (Innovation), **Víctor Moreno** (Data Science).
A project from IDIBELL-HUB.



Unmet Need

Multiple sclerosis is the **primary cause of neurological disability** in young adults, yet a lack of predictive tools forces a **trial-and-error approach** to treatment. This clinical uncertainty leads to a dangerous imbalance where high-risk patients are often **undertreated** while low-risk cases are **overtreated**. Furthermore, drug development is stifled by a **7-10 year timeline** and costs reaching **€35-50M** per trial. The absence of a **surrogate endpoint** remains a critical barrier to faster, more effective therapeutic breakthroughs.

Technology

MRI + clinical + lab data → **per-patient prediction**

→ Disability progression risk at **5 / 10 / 15 years** → Best treatment for **this patient**

Built on a **Unique MS dataset: 1,000+ patients · 10,000+ MRIs · 20+ years**

Proprietary: harmonization · segmentation · brain volumetry · T1-dark rim biomarker

Market Opportunity

→ **PREVALENCE**

55,000 patients in Spain

~**1.2M** Europe

~**2.9M** worldwide

→ **MARKET**

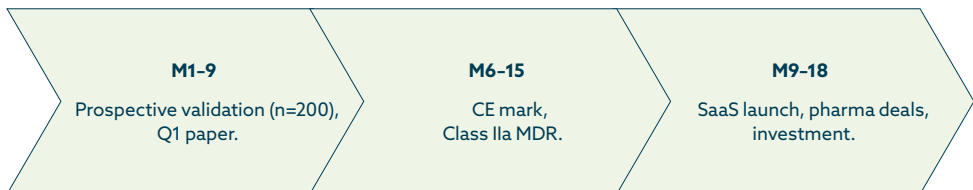
€46,000/patient/year in Spain

Revenue streams:

→ **SaaS · Reference Centers** → **Pharma surrogate endpoint · trials 10y** → **3y · €50M**

→ **€20M**

Roadmap



Innovation, technology transfer and business development

The background of the page features a vertical gradient from green at the top to light blue at the bottom. Overlaid on this gradient is a complex network diagram consisting of numerous circular nodes of varying sizes, connected by thin, light-colored lines. The nodes and lines are more densely packed in the upper right and lower right areas, creating a sense of interconnectedness and activity.

Business Development and Innovation Area



Miguel Ángel Souto Mora, PhD
Business Development and Innovation Area Director

— Administrative of the Area: **Andrea Ginés**



Maria José Guilera, PhD
Head of Innovation



Pablo Estañol



Dimitra Vlachokosta

KEY ACTIVITIES

- Scouting, evaluation and valorization of innovation projects
- Management patent portfolio and relationships with companies to promote innovation
- Leading the technology transfer strategy
- Draft competitive calls to present innovation projects



Gisela Gallego
Head of Business Development



Helena Delgado



Lucia Enciso

KEY ACTIVITIES

- Alliances with the industry and international partners
- Identifying and pursuing new opportunities for growth and expansion (services)
- Participation in European Projects as WP leaders
- Consolidation and follow-up of licenses, spin-offs and agreements

2025 Key Performance Indicators

175 Active patents
belonging to **36 families**

4 new patent applications
+
2 new software registrations



50 prioritized projects
21 new projects evaluated



22 licenses & 5 active spin-offs



52 active R+D contracts
36 national
16 international



2.9M€
raised funds

BDI'S Certifications



Accredited by **EATRIS** as an Expert Center in innovation, business development, and regulatory affairs.



EIT Health Spice
European network for accelerating commercialization of innovative healthcare solutions.



Accredited for:
Market and Business Strategy, MD/IVD regulatory, Programme Founder to CEO.



ISO 56001 certification
Innovation Management System certified since 2021.

Participation in international projects

UMBRELLA (Horizon Europe)

Awarded | €170,500

Stroke care management through AI and harmonization of clinical data.

BDI's role: Lead –Regulatory Compliance: develop regulatory roadmaps and eHTA considerations; create regulatory pathways; design health economic models.

FREEDOM (WIDERA)

Awarded | €508,664.36

Strengthen institutional research capacities and scientific excellence in Widening countries to tackle the Problematic Use of the Internet (PU) and promote digital well-being.

BDI's role: Education and training in Business Development and Innovation.

Key initiatives and solutions for the ecosystem



VTSO - XarSMART Innovation Awards

30.000€ annual awards funded by an alliance between Viladecans the Style Outlet and XarSMART to promote technology transfer.



KIT4KAT

Tool for early-stage research projects with the potential of being transferred to the market.



GRANTZILLA

AI-powered grant management that matches the user profile and funding needs with available funding.



SMARTropolis

SMARTropolis The city of knowledge

Access to training courses, webinars and masterclasses taught by industry experts.

Contact

✉ innovacio@idibell.cat

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XarSmart

— fem créixer el coneixement —

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