



Global Translational Projects on the Road

Venture Capital Day
October 1, 2025 - Berlin



Therapeutics

Medical Devices

Diagnostics

*The order of the slides in this booklet follows the pitching sequence established for this event, with colors indicating the respective fields.

Yoda Pharmaceuticals Inc. / YA-101

New Orphan Small Molecule for Multiple System Atrophy



Key Metrics

Founded / SPARK site

2019 / SPARK Taiwan

University / Location

National Taiwan University/ Taipei

Stage

Phase II ongoing

Phase III to initiate in Q3 2026

Round

Licensing, partnering, Series A fundraising (to initiate the Phase 3: USD \$60M)

Investors

Backed by major Taiwanese banks & venture capital firms, and a leading Japanese VC

Contact E-mail

janetseng@yodapharma.com

Medical need

Multiple system atrophy (MSA) is a rare, fatal, and rapidly progressive neurodegenerative disorder characterized by a combination of parkinsonism, cerebellar ataxia, and autonomic dysfunction.

- **Rare:** Adult-onset (mean onset 50–55 years); prevalence 1.9–4.9 per 100,000.
- **Rapid decline:** Severe Disability; 24-hour care often needed.
- **Life-Threatening & Fatal:** Median survival 6–9 years; major causes of death include sudden death and infections.
- **No Approved Therapy** – Current treatment is symptomatic only; high unmet need for effective treatments and novel therapeutic strategies.

Product & Solution

YA-101 Unique MOA

- Modulates D-Amino Acid Oxidase (DAAO) Increases NMDA receptor activity enhances neuronal plasticity
- Suppresses pro-inflammatory cytokines reduces brain inflammation

Potential Benefits: Improvements in motor and cognitive functions

Preclinical: Efficacy and safety were confirmed in animal models mimicking MSA

Differentiation: Competitors target α -synuclein (clearance, aggregation, accumulation). Prior α -syn-targeted therapies (rapamycin, riluzole, minocycline, lithium, nilotinib) failed in preclinical & clinical studies

Investment Thesis

Milestones

2022: US FDA ODD for MSA
2024: Phase I Completed in AUS
2024: US FDA IND Phase II Approval
2025: Japan CTN Approval
Phase II: Ongoing in US, Japan, Taiwan

Market Opportunity

Estimated US Market (2031) $\approx$ US\$6.8B
50,000 patients $\times$ 90% treated $\times$ 72% adherence $\times$ 70% market share
US\$300K per patient

Team Highlights

Chairman: 40+ yrs biotech/pharma, IPO & licensing track record

CEO: Computational drug discovery, 30+ yrs experience, CNS expert

Core Team: 15+ yrs experience, expert, global, efficient

EVolution Therapeutics

Nanoparticle-Based Inflammation Resolving Therapy



Medical need

Unrestrained inflammation acts as a key driver of many intractable diseases, which have a significant unmet medical need. The therapeutic arsenal for inflammatory diseases is currently limited in scope, and our goal is to create a new therapeutic avenue with our novel innovation.

Our initial focus is **non-healing wounds**, specifically **diabetic foot ulcers**, which place a major burden on both patients and healthcare systems worldwide. In the NHS, 70% of wound care costs stem from community visits, with over **54 million nurse visits** and **262 million dressings** annually, reflecting the reliance on passive management that fails to address the root cause of chronic inflammation.

Existing small-molecule inhibitors suppress immune function and offer limited clinical benefit. In contrast, our **mRNA-LNP hydrogel therapy** actively accelerates wound healing and avoids many drawbacks of cell-based therapies, including safety, scalability, and storage challenges.

Product & Solution

Non-healing wounds present a significant global unmet medical need, with limited therapeutic options available. The burden on healthcare systems and patients is immense and only intensifying. **"Wound care is the NHS's third highest expense, following cancer and diabetes."** It is estimated that 3.8 million patients are managed by the NHS for wounds each year at an annual NHS cost of £8.3 billion, of which £5.6 billion (2018) is associated with managing non-healing wounds.

Our solution is a **first-in-class** therapeutic leveraging 20 years of UK government funded research. A disruptive approach with a **defined MoA**.

- Combines a biodegradable polymer hydrogel for controlled release of mRNA-loaded nanoparticles
- Batch standardisable, highly scalable, and leverages established LNP production infrastructure
- Pro-resolving NOT anti-inflammatory
- Broad potential for treatment of other chronic inflammatory diseases

Investment Thesis

Milestones

- ✓ Secured **£1.25M+ in non-dilutive funding** since 2023 (four UK government grants)
- ✓ **Manufactured lead formulations** and validated safety/efficacy in **three preclinical animal studies**
- ✓ **Two patents** filed for our technology

Market Opportunity

Global advanced wound care market estimated value of \$12B growing to \$17.5B by 2030. 40% market share for first-in-class biologic. In the UK, wound prevalence increased by 71% (2013–2018), driving a 48% rise in patient management costs – a silent epidemic.

Team Highlights

A multidisciplinary team with 100+ years of combined expertise in nanoparticle research, bioanalytical chemistry, commercialisation, and strategic funding. Collectively involved in securing over £70M+ in public and private investment.

Key Metrics

Founded / SPARK site

2022 / SPARK UK

University / Location

Aston University,
Birmingham, UK

Stage

Seed
TRL – 4/5

Round

£1M (Funds next key translational stage moving to IND enabling studies)

Investors

Aston University

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PrecisemAb Biotech/PSM101 (Conditionally Activated anti-EGFR Antibody)



Conditionally activated anti-EGFR antibody for HNC and mCRC

Medical need

Patients with EGFR-overexpressing cancers—including head and neck cancer, colorectal cancer, and non-small cell lung cancer—often face limited treatment options after frontline therapy fails.

While **anti-EGFR antibodies like cetuximab** are approved, they cause **on-target, off-tumor toxicities** (e.g., severe skin rash) due to EGFR expression in healthy tissues, limiting dose and patient eligibility.

Multiple attempts to develop EGFR-targeting ADCs have failed in early trials, mainly due to unacceptable toxicity, highlighting the need for safer, more selective EGFR therapies.

There is an **urgent clinical need** for next-generation anti-EGFR agents that **retain efficacy while minimizing systemic side effects** and enabling **combination with chemotherapy or immune checkpoint inhibitors**.

Product & Solution

PSM101 is a conditionally activated anti-EGFR antibody built with our proprietary **Universal Antibody Lock** technology.

The antibody remains inactive in circulation and normal tissues, and is selectively reactivated inside tumors via protease cleavage — **minimizing systemic toxicity** and **maximizing tumor specificity**.

Key advantages:

- **Maximize tumor selectivity** and reduce systemic toxicities
- **Expand the therapeutic window**, enabling higher or more frequent dosing
- **ADC-ready, with tunable on/off control**
- Suitable for solid tumors with **EGFR overexpression**
- **Improve patient quality of life** without compromising efficacy

Investment Thesis

Milestones

- **Licensing deal with GlycoNex (TWSE: 4163)**, validating Antibody Lock platform in ADC and anti-glycan programs
- US provisional patent filed for PSM101; patents **granted in 18 countries**
- Completed **multiple paid pilot projects** for antibody engineering

Market Opportunity

- **PSM101 addresses a \$3.6B EGFR mAb market with 2.65M+ new patients annually** (e.g., HNSCC, CRC, NSCLC).
- We offer **out-licensing** of Lock-ready Abs and **custom design services**. Pipelines: **11 locked mAbs and BsAbs** across oncology and autoimmune indications.
- 10+ years in antibody discovery and IND-enabling development

Team Highlights

- Advisors with 20+ years of success in ADC launches, licensing, and M&A
- Proven track record in bridging science and business to build high-value partnerships

Key Metrics

Founded / SPARK site

2021/ SPARK Taiwan

University / Location

Kaohsiung Medical University/
Taiwan

Stage

Pre-Clinical

Round

Pre A-round

Investors

Paragon Investment (founded by Taiwan biggest CRO founder)/
Angel Investors

Contact E-mail

CEO / Yunchi Lu PhD
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BD Manager / Bing Wu
bingtsung.wu@precisemab.com

Biased STING Agonists to Treat Inflammatory and Fibrotic Disorders

Medical need

Tissue fibrosis is a world-wide health problem resulting in many life-threatening diseases affecting the lung, liver, kidney, heart, and other organs. Liver inflammation and fibrosis is a progressive feature of several diseases, emanating from several sources, such as chemical, metabolic and genetic triggers with little therapies currently on the shelf. Severe fibrotic pathology is responsible for 65% of health-related mortality. Since many of these disorders emanate from immune/inflammatory causes, treating either the inflammatory or fibrotic phases of disease is an unmet need for big pharma companies. Idiopathic Pulmonary Fibrosis is a terminal disease with current treatments only able to delay its progression in some patients, but futile in reversing tissue damage and restoring the life quality of most patients

Product & Solution

The cytoplasmic adaptor protein STING (Tmem173) is a potent inducer of immune responses to cytosolic DNA that plays a role in the onset as well as the resolution of acute inflammation and liver fibrosis. Curiously, STING induces simultaneous production of inflammatory cytokines and chemokines (Like TNF α , CXCL10, and IL-6) as well as anti-inflammatory cytokines (like IL-10) from immune cells. We have recently identified novel STING-binding small compounds that activate it in a biased manner, resulting in the production of anti-inflammatory/ pro-resolving cytokines (primarily IFN- γ and β), but inhibition of the production of their inflammatory counterparts. A biased STING agonists (BiST 2.1) was found to activate the STING pathway and modulate cytokine production in vivo to enhance the resolution of liver MASH and fibrosis. These are unique properties of STING-binding compounds that have yet to be developed by the pharmaceutical industry despite its vast interest in this target.

Investment Thesis

Milestones

Completion of POC which includes demonstrating the biased activity of BiST 2.1 ex vivo (in splenocytes) and in vivo in peritonitis and liver fibrosis (>80% inhibition of hepatocyte ballooning). The project was funded by **Israeli Innovation Authority Grant** for applied research in Academia

Market Opportunity

Global NAFLD Drug Market- Estimated at \$17 billion in 2025, projected to grow to \$32.05 billion by 2033 at a CAGR of 4.8 %; Broader fatty liver treatments (Future Market Insights): The overall market—including diagnostics and lifestyle therapies—is estimated at \$25.5 billion in 2025; \$40.6 billion 2035

Team Highlights

Prof. Amiram Ariel- President, FISEB, and **former president** IIS. Expert in cellular and molecular inflammation, tissue repair and fibrosis. **Dr. Nofar Ben Jashar, Dr. Sagie Schiff-Zuck-** Performed all of the experimentation related to this project; Masterful in all needed methodologies and experienced in adapting new techniques and software.

Key Metrics

Founded / SPARK site

2023 / SPARK Haifa

University / Location

University of Haifa, Haifa, Israel 199 Aba Khoushy Ave. Mount Carmel, Haifa, 3103301 , Israel

Stage

TLR4

Round

Investors

Israeli Innovation Authority Grant

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NuPlus: A Rare Disease Solution for Metastatic Triple-Negative Breast Cancer

The First-in-class DDB2-Targeting Oligonucleotide Drug



Key Metrics

Founded / SPARK site

SPARK Taiwan

CMU SPARK OFFICE

University / Location

China Medical University_Taiwan



Stage

Preclinical

Round

Seed 3MM USD

Investors

Early-stage engagement with multiple parties

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Medical need

Metastatic triple-negative breast cancer (mTNBC) represents one of the most aggressive and lethal subtypes of breast cancer, characterized by high recurrence, rapid progression, and limited treatment options. Current therapies offer only modest benefits, with an average survival of approximately two years. Moreover, resistance to chemotherapy remains a critical challenge, leaving patients with few effective alternatives. There is therefore a strong unmet medical need for novel, targeted therapies that can overcome drug resistance, extend survival, and improve quality of life for patients with mTNBC.

Product & Solution

NuPlus is a **first-in-class oligonucleotide drug** targeting the previously “undruggable” DDB2 protein in metastatic triple-negative breast cancer (mTNBC). By blocking DNA repair and inducing apoptosis, NuPlus achieves **75% tumor inhibition in preclinical studies** with fewer side effects. Its **fully chemical synthesis (20-mer)** ensures stable, low-cost, and scalable production. Compared to current therapies with limited efficacy and high toxicity, NuPlus offers a **novel, effective, and safer solution**, with potential for orphan drug designation in major markets.

Investment Thesis

Milestones

2025–2026 | Preclinical Validation: Final formulation, safety

2026–2027 | GLP Prep: GMP production, GLP tox

2027–2028 | IND Filing: Complete GLP, submit IND

Market Opportunity

First-in-class DDB2-targeting – undruggable to druggable
75% tumor inhibition – monotherapy
High safety – no geno/acute tox
\$2.35B market + ODD (US/EU/JP)

Team Highlights

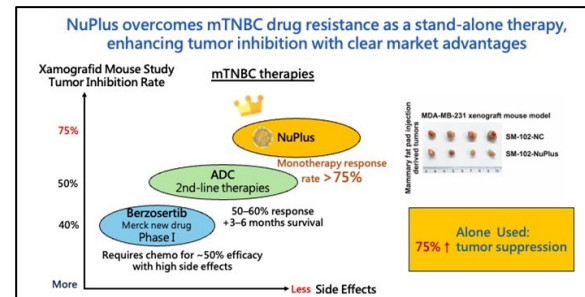
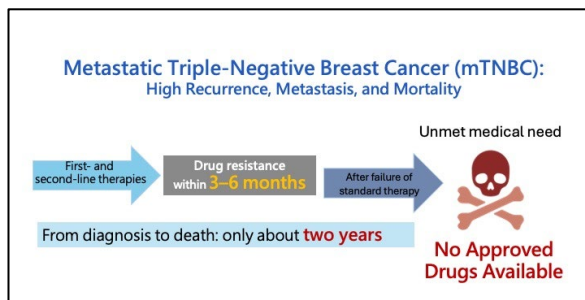
Ilsa Chou, Ph.D. (CEO)

Wei-Chien Huang, Ph.D. (CTO)

Yu-Hao He, Ph.D. · Min-Han Chi, Ph.D. (R&D)

Ya-Ling Wei · Yi-Ling Chen (PM)

Chih-Hao Huang, M.D. (Clinical)





First-in-Class Dual-Action Oral Therapy for Secondary Stroke Prevention in Antiplatelet-Resistant Patients



Medical need

Stroke is the 2nd leading cause of death and the 3rd leading cause of disability worldwide. Each year, there are 12.2 million new cases, and over 101 million people are living with stroke aftermath. Those who survive are at **high risk of recurrence**: one in four will have another stroke within five years, which is often more severe and can be fatal.

Current secondary prevention mainly relies on aspirin or clopidogrel, yet both have **significant limitations**. Clopidogrel resistance affects up to 44% of patients, which significantly reduces its effectiveness, while aspirin increases the risk of bleeding by 38%. Many patients cannot tolerate these drugs due to contraindications such as ulcers, advanced kidney disease or hypersensitivity.

With the incidence of stroke projected to rise by 50% by 2050, the already severe human, social, and economic burden will intensify, exceeding €60 billion annually in the EU. There is therefore an **urgent need for safer and more universally effective** therapy that overcomes genetic, safety and efficacy barriers to protect survivors and reduce the strain on healthcare systems.

Product & Solution

CyF-001 is designed to **prevent secondary stroke in patients for whom current antiplatelet drugs are ineffective**. It works through a **novel mechanism** that targets two key drivers of recurrence: excessive platelet activation and weakened vascular integrity.

Importantly, **it does not increase the risk of bleeding**. By enhancing the function of the CFTR protein, CyF-001 reduces clot formation while reinforcing endothelial barriers, providing a level of protection that aspirin and clopidogrel cannot match.

Unlike clopidogrel, CyF-001's efficacy remains consistent regardless of genetic variations or metabolic factors, ensuring its **effectiveness across diverse patient groups**, including those who are resistant to treatment. Its once-daily, slow-release formulation improves adherence and is suitable for elderly patients taking multiple medications.

With a strong pre-clinical evidence base and a proven safety profile from its original use in cystic fibrosis, **CyF-001 could become the safest and most effective option for preventing recurrent strokes**, thereby improving patient outcomes and reducing the healthcare burden.

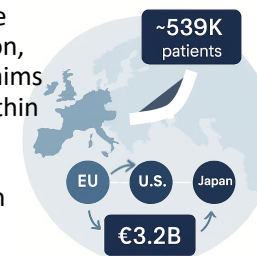
Investment Thesis

Milestones

CFTR modulators function as antiplatelets, attenuating platelet activation and aggregation in human blood (in both healthy donors and patients with COVID-19). Charité holds an **exclusive method-of-use patent** for CFTR potentiators in vascular disease (PCT/EP2023/056541).

Market Opportunity

The immediate EU addressable market is valued at €592 million, rising to €3.2 billion. CyF-001 aims for a 10–30% market share within the first 3 years post-launch, equating to potential annual revenues of €40–120 million in Europe alone.



Team Highlights

Dr.-Ing. Szandor Simmons, discoverer of the CFTR–platelet link, leads scientific direction. CEO Dr. Yvonne van Rijswijk brings extensive clinical trial expertise, and CDO Hans Platteeuw drives formulation design. Backed by Galenicap's SPV model and regulatory clearance by BfArM, the team is positioned for fast, effective market entry.

Key Metrics

Founded / SPARK site

SPARK-BIH

University / Location

Charité – Universitätsmedizin Berlin, Institute of Physiology.

Stage

Seed

Round

€5 Million

Investors

Actively seeking for investors

Contact E-mail

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Hermes Nanomedicine, Inc./NanoX Platform Technology

LNP Cisplatin for Solid Cancer Treatments



Medical need

Cisplatin is the first line campaign chemodrug of all solid tumors based on the NCCN guideline. Therefore, the market is massive and 80% of cancer treatments are combined with cisplatin nowadays. The severe toxicity of cisplatin limits adequate doses to the patient. Cisplatin is a widely used platinum-based chemotherapy drug, but its clinical use is limited by significant toxicities. The most critical dose-limiting toxicity is **nephrotoxicity** which can cause acute kidney injury.

Ototoxicity is another major concern, leading to irreversible sensorineural hearing loss and tinnitus, especially in pediatric patients. **Peripheral neurotoxicity** manifests as numbness and tingling in the extremities. Cisplatin also causes **myelosuppression**, though less severe than carboplatin, leading to anemia, leukopenia, and thrombocytopenia. Its **gastrointestinal toxicity** is characterized by severe nausea and vomiting.

While cisplatin remains highly effective in treating testicular, ovarian, bladder, lung, and head and neck cancers, careful dosing and supportive measures are essential to balance efficacy with safety.

Product & Solution

Due to its unique chemical insolubility property, cisplatin becomes the most difficult drug to encapsulate as a nanomedicine. Global competitor analysis that large nanoparticle size and low drug loading are the main failed causes.

Our breakthrough LNP encapsulation technology to encapsulate cisplatin with 30% high loading with 45nm small nanoparticle size. NanoX has patents granted from global 22 major countries. NanoX technology has completed GMP CMC as the novel one-pot synthesis technology, demonstrating the robustness of NanoX, with up to 18 months CMC stability.

Tumor-bearing animal studies showed it outstanding efficacy in various cancer treatments (head & neck, bile duct, lung cancer) and low side effects in rats and dogs TK studies. Pharmacokinetics profile has improved to accommodate lower dosages with good results.

Investment Thesis

Milestones

Licensing from CYCU in Sept, 2025

Formed a business and development team

Human IND phase - Pre-clinical at GLP stage to IND stage for phase I clinical trial.

Animal Drug – Completed Phase I study and entering Phase II trial with great outcomes.

Market Opportunity

The 2030 global BTC market size is USD 400 million. With 44%, the main market is North America with a market size of USD 90 million. Cisplatin is the main drug to treat BTC; it has 25% market size, which is USD 50 million. In the meanwhile, NanoX will be a blockbuster drug with an estimated USD 1000 million market

Team Highlights

We, Hermes Nanomedicine, the high tech nanomedicine start-up lead by a group of 25-30 experienced individuals of our team.

NanoX technology has been selected as the 2022 Future Technology and Top Technology in Taiwan in Government Technology White Book.

Key Metrics

Founded / SPARK site

May 2025 / SPARK Taiwan

University / Location

Chung Yuan Christian University/Tao-yuan, Taiwan

Stage

Seed stage. We are also looking for investors, co-developer, licensees and clinical trial partners to commercialize NanoX product lines.

Round

We are fund-raising for USD 10M to complete phase I clinical human trial.

Investors

Current with several highly interested potential investors

Contact E-mail

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Novel Inhalable Targeting Lung Structure in Asthma

Medical need

Asthma affects over 260 million people worldwide, yet current treatments focus only on relieving symptoms rather than addressing the underlying damage to the lungs.

Despite the huge global and economic burden (including £1 billion spent annually by the NHS) treatment innovation has stagnated, with no new active ingredients introduced in more than two decades. Around 10% of patients, representing 26 million people, do not respond to corticosteroids and are left without effective options, accounting for the majority of asthma-related hospitalisations.

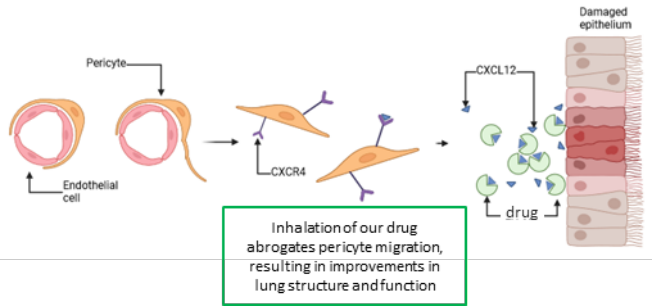
This highlights an urgent unmet need for therapies that go beyond symptom control to directly target and prevent the structural changes in the airways that drive disease progression, improve patient outcomes, and reduce strain on healthcare systems.

Product & Solution

We have developed an inhalable small molecule inhibitor that targets the structural changes that occur in the asthmatic lung and are directly responsible for wheeze.

Unlike existing treatments, our drug does not interfere with the immune response to allergen and instead focuses on halting and reversing structural changes in the lungs by targeting a chemotactic gradient harnessed by pericytes (a type of mesenchymal stromal cell).

Our goal is to offer our drug as an add-on therapy to the existing standard of care and as a new treatment option for asthmatics who do not respond to existing drugs.



Investment Thesis

Milestones

We have extensive in vitro and in vivo efficacy data supporting our drug development as well as preliminary ADME data (based on EP16305908.2).

We have also raised over £215,000 in angel investment during our pre-seed funding round.

Market Opportunity

Global asthma therapeutics market has an estimated value of \$25.7B in 2023 and growing to \$37.8B by 2032. We hope to exit via acquisition in 2030 for a minimum 10X ROI.

We are in talks with key market leaders such as Sanofi and Chiesi Farmaceutici to promote acquisition in the future.

Team Highlights

CEO and CSO have worked together since 2018 and have a combined 30 years research experience in inflammatory lung disease. COO and CFO have extensive experience supporting spin-outs in this sector and CFO is a chartered accountant. Our SAB includes pulmonary medics and an ex-GSK head of respiratory development.

Key Metrics

Founded / SPARK site

2025 / SPARK UK

University / Location

Aston University, Birmingham, UK

Stage

TRL3/4

Round

Seed - £2.3m

Investors

Angels

Contact E-mail

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Epithelica GmbH

In situ gene editing for genodermatoses – starting with ARCI



Key Metrics

Founded / SPARK site

Founded 07/2025 / SPARK-BIH

University / Location

BIH Clinical Incubator (CLIC) /
Berlin, Germany

Stage

Late preclinical, pre-seed

Round

Seed

Investors

Contact E-mail

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Medical need

Genodermatoses are rare hereditary skin diseases characterized by impaired skin barrier function. This leads to increased transepidermal water loss and a high risk for infection, which is particularly dangerous for neonates, causing higher mortality rates. Genodermatoses such as autosomal recessive congenital ichthyosis (ARCI) cause lifelong scaling, painful fissuring, infections, heat intolerance, and major quality-of-life impairment. Life expectancy is also severely affected. Currently, no effective and curative treatments exist. Symptomatic treatments include frequent (2x/day) and rigorous bathing to remove affected skin areas, followed by the application of moisturizers and other creams. These treatments are very time-consuming (2 hours a day), costly, and might not be covered by health insurance.

Product & Solution

We have developed a first-in-class, non-viral base editing therapy designed to cure genodermatoses at their root by directly correcting disease-causing mutations. Our approach integrates three proven components:

- Laser microporation: creates transient pores in the skin, enabling efficient entry of complex biological drugs into target cells.
- Lipid nanoparticles (LNPs): safe, scalable carriers validated globally in billions of COVID-19 mRNA vaccinations.
- RNA-based base editors: allow precise, transient correction of mutations directly in the skin.

Backed by extensive preclinical data, our therapy has demonstrated both safety and efficacy. Unlike viral vectors or ex vivo gene therapy, our platform is scalable, cost-effective, and well-positioned for clinical translation.

Investment Thesis

Milestones

- Patent WO2025061842A1 (ARCI)
- Orphan Drug Designation (ODD) granted by EMA and FDA for ARCI
- Preclinical data package with extensive safety and efficacy data

Market Opportunity

- US\$ 6 billion initial obtainable market for genodermatoses
- US\$ 100 billion worldwide market following expansion to more common skin diseases

Team Highlights

Team with deep expertise in skin biology, drug delivery, and gene editing, complemented by proven start-up and business leadership. This combination uniquely positions us to solve complex challenges in rare disease therapy and to turn breakthrough science into meaningful patient impact.

Autologous Tissue Heart Valve Replacement

Medical need

Worldwide, 1.35 Million babies are born with a congenital heart defect every year. Among them, 400,000 suffer from a life-threatening heart valve defect. However, **there is no durable valve replacement** available currently on the market.

We are planning to meet that clinical demand with a completely **new prosthetic valve for adults and children** which is implanted using a minimally invasive transcatheter technique.

Our innovative valve, made from patient-donated (endogenous) tissue, offers a lifelong durability: a once-in-a-lifetime solution. It eliminates the need for patients to undergo repetitive heart valve replacement surgery and to accept medication throughout their whole lives, improving patient outcomes and reducing long-term healthcare costs.

Product & Solution

The aim of the project is the development of a **personalized, autologous heart valve for adults and children enabling growth** in a once-in-a-lifetime point-of-care minimally invasive implantation.

The novel anchoring mechanism facilitates placement of the valve without hindering growth of valve and vessels.

For babies born with a congenital heart valve defect there is no dedicated child valve on the market. Instead, they often receive animal tissue-based valves which degrade over the following years urging for risky open-heart re-surgery.

After proofing the functionality of the innovative valve in pulmonary position, the platform technology of heart valve manufacturing can be applied to all heart valves needing replacement including the aortic valve.

Investment Thesis

Milestones

FIH: First in Human Study with n=7 Patients at the Charité University Hospital/ Berlin. Main Patents are in place to secure the procedure. Strategic agreements are in the making to secure exclusivity regarding materials.

Market Opportunity

The global transcatheter heart valve market is projected to reach \$13 billion by 2030, growing at a CAGR of >15%. Within this market, the aortic valve segment holds the largest share, accounting for approximately 60%. The pulmonary valve segment is dominated by the unserved pediatric population that is a blue ocean of \$2.4bn.

Team Highlights

We are a multidisciplinary, young team of researchers, engineers, regulatory specialists, and business experts, led by experienced leaders, with a proven track record in bringing successfully medical devices to market.

Key Metrics

Founded / SPARK site

2019 / SPARK-BIH

University / Location

Center for Cardiovascular Diseases (DHZC), Charité University Hospital/ Berlin

Stage

Seed

TRL 4

Round

Series A

Investors

EIC Accelerator

ERC Transition

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Highly Affordable Insulin Pump and Hybrid-Closed Loop Artificial Pancreas System

Intelligent Automated Insulin Delivery



Key Metrics

Founded / SPARK site

SPARK Amrita

University / Location

Indian Institute of Science,
Bengaluru, India

Stage

TRL 4/5

Round

Investors

Contact E-mail

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bipin@am.amrita.edu

Medical need

Type -1 diabetic patients require insulin to maintain their glucose levels. Current methods of treatments include insulin injections, medication and strict diets. These are not effective means of maintaining glucose levels and can lead to several health complications due to hypoglycemia and hyperglycemia.

Insulin pumps and Artificial Pancreas Systems (hybrid closed loop systems) significantly improve the health and lifestyle of these individuals.

Advanced insulin delivery systems like automated insulin pumps and artificial pancreas could potentially provide essential aspects of advanced diabetes care

Product & Solution

Proposed to develop a state of the art and affordable insulin pump to benefit millions of diabetic patients. The cost of the proposed insulin pump will be less than 1200 USD, which is less than half the cost of other insulin pumps available globally.

A version of the pump will also have closed loop functionality (Artificial Pancreas). It will include a sophisticated customized predictive algorithm that is robust and ensures tight glucose control.

The AP system will cost 3500 USD which is significantly lower than the cost of the Medtronic 780 G (currently available in the market).

Investment Thesis

Milestones

Insulin pump prototype already development and in Pre-clinical trial phase. (2 US Patents and 1 Indian Patent)

Artificial Pancreas Systems: Currently undergoing clinical trials (using commercially available and certified insulin pumps). (1 Indian Patent applied)

Market Opportunity

Total number of people who require insulin pumps and AP systems in India: ~ 20 million (10 mil. T-1 and 10 mil insulin dependent T-2)

Current users: ~70,000
Target population: 1 million users

Team Highlights

We have a strong development team with a diverse engineering background. We have also partnered with leading endocrinologists throughout India in order to conduct clinical trials and validate our solutions.

iPreg Inc. / Centifuge-Free Sperm Sorting Biochip

iPreg Biochip for Healthy Sperm Selection



Key Metrics

Founded / SPARK site

2018 / SPARK Taiwan

University / Location

National Chiao Tung University / Taiwan

Stage

Seed

Round

2020 raised 1M USD
2024 raised 2M USD

Investors

All from angel capital

Contact E-mail

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Medical need

Approximately 15% of the global population is affected by infertility, and the best treatment option for infertility is the use of Assisted Reproductive Technology (ART). Currently, In Vitro Fertilization (IVF) and Intracytoplasmic Sperm Injection (ICSI) are the most commonly used solutions in assisted reproduction. Before performing IVF and ICSI, physicians must obtain healthy sperm and eggs to ensure the development of healthy embryos. However, as age increases, both male and female gametes exhibit higher rates of genetic mutations and abnormal cells, which is one of the most critical factors contributing to the failure of ART. In the past, the selection of healthy sperm relied on traditional methods such as Density Gradient Centrifugation (DGC) or the Swim-Up (SW) method, both of which require the use of a centrifuge. The centrifugal force can damage the DNA integrity of the sperm, causing DNA fragmentation in cells and leading to the failure of IVF.

Product & Solution

We have developed a healthy sperm selection biochip (SperSort chip), that enables rapid selection of healthy sperm without the need for centrifugation, making it suitable for subsequent IVF and ICSI procedures. The SperSort chip simplifies the laboratory operational workflow for sperm selection. Compared to traditional methods, the SperSort chip enables rapid isolation of sperm with optimal motility and morphological health, while reducing DNA damage and enhancing sperm DNA integrity. Therefore, utilizing the SperSort chip in in vitro fertilization (IVF) treatment can increase the proportion of healthy sperm from 20% to over 90%, while reducing the rate of DNA damage from 30% to below 5%. It is expected to enhance the fertilization success rate and improve the proportion of high-quality embryo development in IVF procedures.

Investment Thesis

Milestones

iPreg has acquired 9 granted patents. The iPreg SperSort chip has obtained ISO 13485 certification, Taiwan QMS and FDA approval, as well as U.S. FDA 510(k) marketing authorization (k241626).

Market Opportunity

The target users of this product are obstetricians, gynecologists, and embryologists in fertility centers. The global market for sperm selection in ART treatments is valued at \$500M, and we project to capture 10% market share within the next three years.

Team Highlights

Driven by a personal commitment to infertility solutions—as both our CEO and board are largely affected—we leverage a strong R&D team (4 PhDs, 1 MD/PhD) and global hospital partnerships to pursue unicorn potential.

Prediction of Treatment Response in Liver Cancer



BeLiver

Key Metrics

Founded / SPARK site
Madeleine.Moscatelli@beliver.fr

University / Location
SPARK Bordeaux

Stage
Université de Bordeaux

Round
Seed – TRL 5

Investors
€2.5 Million

Contact E-mail

Medical need

With one million new cases and 830,000 deaths each year, liver cancer is the third deadliest worldwide, and projections indicate a 55% increase in cases by 2040.

Despite this alarming outlook, no clinical tool currently exists to guide physicians in selecting the most effective treatment for each patient. As a result, the first-line therapy is chosen without any biological rationale and proves effective in only 15-30% of cases. This treatment, an immunotherapy costing €100,000 over 18 months, is administered indiscriminately, even though it is known to be ineffective in more than 70% of patients. Among non-responders, only 25% will have access to a second-line treatment, while the others will not get this chance and will die before. Many of these patients could have benefited from a different therapy, had it been administered from the start.

Optimizing treatment selection from the very first line is therefore essential to improve patient survival.

Product & Solution

BeLiver is a precision medicine service for liver cancer, the first of its kind, as no test currently exists for this disease. Our solution predicts individual patient response to chemotherapy and immunotherapy by combining proteome analysis with AI.

It delivers a personalized treatment-response report in less than a week from a standard biopsy, with no additional procedure for the patient.

Unlike conventional biomarker or mutation-based approaches, BeLiver measures the real biological activity of the tumor and its microenvironment, enabling accurate predictions even in cancers without biomarkers. Thanks to this approach, BeLiver allows clinicians to base their decisions on patient-specific biological data, resulting in higher response rates, better quality of life for patients, and substantial savings for healthcare systems, estimated at hundred millions euros nationally.

Investment Thesis

Milestones

We have completed a POC study on over 100 liver cancer patients, demonstrating highly promising predictive results, and additional POC studies in other cancers such as bladder and kidney have also shown very encouraging outcomes. We also have secured a licensing agreement covering three patents and a proprietary database.

Market Opportunity

Our customers are expert oncology centers in Europe and CLIA-certified laboratories in the U.S. The addressable market is ~9,700 patients/year in France and ~36,000 in the U.S.

Team Highlights

BeLiver is led by a complementary founding team of four experts combining entrepreneurship, proteomics, AI, and oncology. We are also supported by 50 Partners and guided by a business and clinical board that advises us in our development.

3D Noninvasive Visualization for Lymphedema Diagnosis and Beyond

Medical need	Product & Solution	Investment Thesis
• Lymphedema diagnosis remains subjective and invasive; current standards (circumference, BIS, nuclear medicine imaging) lack accuracy, accessibility, or objectivity • Early fluid retention in heart failure often missed, and implantable devices lower QOL (Quality of life) • No reliable tool for simultaneous edema and muscle quality and quantity monitoring (sarcopenia, elderly care)	• Non-invasive, multi-frequency tomography enabling 3D localized visualization of edema and muscle • Proprietary technology: simple, fast, accurate; validated in clinical cases (n≈30 lymphedema patients @ Chiba University hospital) • Expands from lymphedema to comprehensive edema and muscle monitoring across medical, caregiving, and healthcare	Milestones • Prototype developed; validated in ~30 clinical cases • PMDA regulatory consultation completed; IP filed Market Opportunity • Customers: hospitals, clinics, elderly care facilities, home healthcare • Lymphedema alone: millions of patients globally Team Highlights • An expert team in body visualization from Chiba University, Japan, advancing imaging innovation through collaboration with medical, nursing, & engineering.

Key Metrics

Founded / SPARK site

SPARK Tsukuba

University / Location

Faculty of Engineering, Takei Lab,
CHIBA, 1-33 Yayoi, Inage, Chiba
#263-8522 JAPAN

Stage

Seed

Round

Investors

Seeking the seed round

Contact E-mail

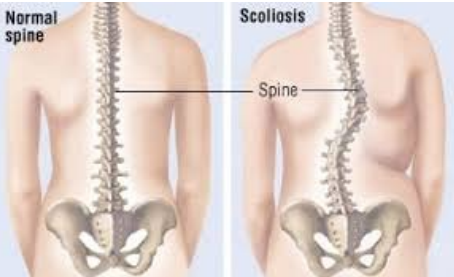
ryoma-ogawa@chiba-u.jp

Potable & Quantitative Screening System for Early Detection of Scoliosis

Medical need

Medical Need

Scoliosis affects 2–3% of children, mainly girls 10–16. Current school screening often misses cases, leading to late diagnosis and surgery. Early detection enables bracing and prevents progression.



Current Gold Standard

Screening:
Adam’s test
Subjective
Low accuracy.

Diagnosis:
X-ray
Radiation
Cost



Product & Solution

Product Solution

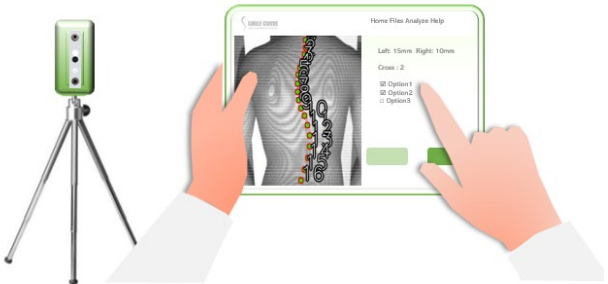
A portable 3D scanner with AI-based reading software, designed for scoliosis screening in schools.

Unique Value

- High-precision, high-speed proprietary 3D scanner
- Japan’s original moiré method integrated with modern scanning
- Access to datasets from Japanese school screenings and hospitals

Why Best

- Portable, fast, radiation-free
- Easy school use, quantitative results
- Remote review by specialists



Investment Thesis

Milestones

2023: Prototype completed
2025: Secured \$2M grant, preparing device launch
Ongoing: Nationwide study by Ministry of Education of Japan

Patent JP 2017-553279, etc.

Market Opportunity

Customers

Schools, Clinics, Hospitals, etc.

Market Size

Japan: \$13–27M/year (over 50% share)
Global: affects 2–3% of children (multi-billion USD surgery market)

Team Highlights

Team

Global scoliosis doctors, top screening provider, AI & 3D experts, medtech commercialization and sales veterans.

Support

Keio University supports our business launch with a \$2M government grant.

Key Metrics

Founded / SPARK site

2023 / SPARK Japan (Keio)

University / Location

Keio University

Stage

Pre-seed

Round

\$ 1-2MM in 2026 for production, approval, and global validation

Investors

Contact E-mail

info@smilecurve.jp



Medical need

Every year, thousands of newborns suffer from hidden immune disorders that remain undetected at birth. Current screening programs test only a small set of genetic diseases and cannot reveal whether the immune system actually works. As a result, many children appear healthy but are only diagnosed after severe infections cause irreversible damage. By then, treatments are less effective and survivors often face lifelong disability. Early functional detection changes this trajectory: when immune defects are identified before symptoms, targeted therapies can be started immediately, dramatically improving survival and quality of life.

The difference is dramatic:

Late diagnosis → irreversible organ damage, lifelong disability, or death

Early functional detection → targeted therapy before symptoms, with survival and quality of life vastly improved

Product & Solution

T-yp001 is a rapid, dry reagent-based assay that measures T cell activity from a small drop of blood, delivering results in one hour. Unlike genetic panels, which only identify known mutations, our test provides a real-time snapshot of immune function, capturing both known and unknown disorders.

The product is designed for two major applications. First, as the world's first functional immune test in newborn screening programs, expanding detection far beyond current genetic approaches. Second, in pediatric hospitals, where it enables rapid triage of children with sepsis-like symptoms, helping clinicians quickly distinguish between benign infections and life-threatening immune disorders. Simple, scalable, and cost-effective, T-yp001 brings functional immune diagnostics to the point of care, enabling earlier intervention, preventing irreversible complications, and improving survival and quality of life for children worldwide.

Investment Thesis

Milestones

Our core technology is already applied in European clinics. We have now developed a new assay expanding detection to T cell defects and hyperinflammatory syndromes, with prototype completion planned for Q4 2025.

Market Opportunity

Switzerland, with ~85,000 births annually and strong newborn screening adoption, is our entry market. From here, we will scale into Europe and the US (7.3M births/year). T-yp has clear first-mover advantage in functional immune testing.

Team Highlights

Our team brings expertise in rare immunological diseases and diagnostics. Prof. Jana Pachlopnik contributed to TREC newborn screening in Switzerland. With Dr. Stefano Vavassori and Dr. Tommaso Marchetti, we now pioneer functional newborn screening.

Key Metrics

Founded / SPARK site
2025 / SPARK Zurich

University / Location
University of Zurich & Children's Hospital Zurich, Switzerland

Stage
Pre-seed

Round
Seed financing planned Q4 2025 (CHF 1M)

Investors
Innosuisse Coaching, UZH Innovation HUB

Contact E-mail
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A Novel Pseudo-Skin Platform

Stimuli-responsive pseudo-skin dressing for advanced wound healing



Medical need

Typically, injury to the dermis of a human and/or animal results in an external wound and a wound dressing such as a bandage and/or band-aid is applied over the surface of the wound to encourage healing of said wound. Wound treatment and management has been proven to be challenging due to the fact that various extrinsic and intrinsic factors govern significant roles during the healing process. This is particularly evident in external wounds that include damage to skin of a human or animal body. A known disadvantage in the current state of the art includes adherence of wound dressings to wounds upon their removal, often resulting in damage to several layers of the dermis that have been repaired and/or are partially repaired. In order to promote general wound healing (e.g. angiogenesis and connective tissue proliferation) a moist wound environment should be encouraged. Often, known wound dressings dry out the wound which is disadvantageous for the wound healing. Injuries to the dermis may often result in infection, inflammation and/or sepsis. Typically, wounds are first cleaned, then various active pharmaceutical ingredients (APIs) are administered to the wound site, and finally the wound dressing is applied. Access to the various APIs and additionally the wound dressing may be limited and a skilled medical practitioner may not always be available. Furthermore, wound dressings often break and/or tear increasing the changing or replacement frequency. This disrupts the wound healing process and adds to the cost of wound treatment and/or management. There is a need for a wound dressing that ameliorates the above mentioned disadvantages.

Product & Solution

Our invention describes a stimuli-responsive wound dressing as a semi-interpenetrating polymer network comprising a lyophilised hyaluronic acid (HA) hydrogel, incorporating natural biopolymers, crosslinkers, and bioactives including chitosan, hypromellose, citric acid, curcumin, and genipin. The dressing may be formed as biofilms and/or electrospun fibre mats. The combination of biopolymers and bioactives in the film exert a synergistic healing effect throughout the phases of wound healing.

Inflammation Phase

HA depolymerises (hydroxyl radical-initiated) releasing the biopolymer and bioactives into the wound site. HA hydrogel absorbs water and/or exudates facilitating the maintenance of a moist wound site, promoting angiogenesis and wound healing. Chitosan aids homeostasis of the wound site. Curcumin provides anti-inflammatory activity, anti-oxidant activity and facilitates TGF- β 1 formation.

Proliferation Phase

HA promotes proliferation and regeneration of cells at the wound site. Chitosan promotes differentiation, re-epithelisation and fibroplasias during granulation. Hypromellose promotes and/or facilitates angiogenesis. Curcumin facilitates cell proliferation, induction of growth factors and granulation tissue formation.

Remodeling phase

HA facilitates cell migration to aid tissue remodeling. Chitosan facilitates decreased hypertrophic scar formation.

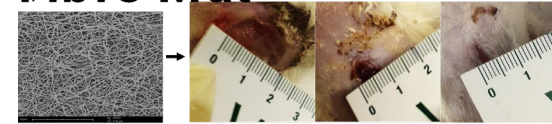
This bioactive dressing is designed for advanced wound care (AWC) (e.g., diabetic foot, venous leg, pressure ulcers, burns/trauma, surgical)

Investment Thesis

Milestones

Granted International Patents:

- China CN107106720B (Jun 2020)
- Japan JP6506311B2 (Apr 2019)
- Europe EP3151872B1 (Dec 2018)
- USA US10080816B2 (Oct 2018)



Market Opportunity

Primary customers = institutional buyers (core): hospitals, surgical centres, specialist clinics, elderly care facilities, government & NGO programs.
Global market for AWC: ~\$11–13 billion in 2024/25, growing ~5–6% CAGR to ~\$15–20 billion by 2030–2032.
Serviceable Available Market (SAM), global entry: target chronic wound subsegments (e.g. diabetic foot) account for ~50–60% of AWC value. Using 50% of a \$11.3–12.6 B AWC base $\Rightarrow$ \$5.6–6.3 B SAM

Team Highlights

Proven expertise in advanced drug delivery and biomaterials.
Track record of translating lab concepts $\rightarrow$ prototype $\rightarrow$ *in vivo* validation.
Multidisciplinary, end-to-end capability (spans formulation science, preclinical testing, knowledge of regulatory & quality pathways).
Clinically anchored problem-solving.
Strong institutional base, networks, and infrastructure.
History of innovation in resource-sensitive settings.

Key Metrics

Founded / SPARK site

SPARK Africa

University / Location

Wits Advanced Drug Delivery Platform (WADDP), University of the Witwatersrand

Stage

Seed

Round

Investors

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lisa.dutoit1@wits.ac.za

Amrita Vishwa Vidyapeetham

Development of Affordable POT (Point of Testing) Devices for Monitoring of AMR in Clinical and Environmental Settings



Medical need

Critical paucity of affordable, specific, sensitive, rapid, effective and convenient detection systems for identification of Antimicrobial Resistance (AMR) in clinical and environmental settings.

Product & Solution

The device leverages the specific interactions of lytic bacteriophages with target host bacteria for rapid microfluidics mediated and impedimetry as well as fluorescence based detection of AMR pathogens.

Our bacteriophage-based AMR detection device enables rapid, affordable, and highly sensitive identification of drug-resistant pathogens within one hour, even at low bacterial loads. Leveraging phage-host specificity, it eliminates the need for complex lab infrastructure, making it ideal for hospitals, clinics, and resource-limited settings. Cloud-enabled reporting supports real-time surveillance and antimicrobial stewardship, helping reduce antibiotic misuse and control outbreaks.

Investment Thesis

Milestones

Successful completion of major project supported by the Bill and Melinda Gates foundation to develop a bacteriophage based lytics broadcasting system to combat infection and smell in sewage. **Indian Patent No. 556290-** Methods and devices for detecting antimicrobial resistant bacteria using bacteriophages. Dec 16, 2024

Market Opportunity

Combining speed, accuracy, and scalability, the device addresses the USD 6–10 billion AMR detection market, driving better clinical outcomes, cost savings, and global health security.

Team Highlights

Multidisciplinary development team including phage biologists, microbiologist, sensor technology and electronics engineers.

Key Metrics

Founded / SPARK site

SPARK Amrita

University / Location

School of Biotechnology, Amrita Vishwa Vidyapeetham, Kollam, Kerala, India

Stage

TRL-4

Round

Investors

Contact E-mail

bipin@am.amrita.edu

DFNA10 (EYA4) Gene Therapy — Kitasato Univ & TUAT



First-in-class AAV Gene Therapy for DFNA10 (EYA4) Using an Infiltrating Microneedle DDS for Atraumatic, Apex-Reaching Cochlear Delivery — an “Orphan → Common” Path Toward EYA4-Linked Age-Related Hearing Loss

Medical need	Product & Solution	Investment Thesis
- Generally, progressive sensorineural hearing loss (SNHL) has no disease-modifying therapy; the current gold standards—hearing aids and cochlear implants—are symptomatic and often fail to restore speech clarity and performance in noise. DFNA10 (EYA4): autosomal-dominant progressive SNHL with onset in the 20s–30s; bilateral deterioration to severe/profound levels. - Large expansion potential: common age-related hearing loss (ARHL) is partly driven by EYA4 variants, creating a path from rare to broad indications.	Modality: AAV vector delivering a functional EYA4 to cochlear cells to compensate for haploinsufficiency and to halt or restore hearing. Delivery innovation: Infiltrating microneedle DDS placed in the round window niche for uniform, basal to apical (low-frequency) exposure and sustained local release with minimal trauma (patent pending). Why best positioned: Combines a curative gene therapy with device-enabled distribution that overcomes the key limitation of inner-ear delivery (poor apex coverage) while limiting systemic exposure. First-in-class precision medicine treatment for age-related hearing loss.	Milestones Built and tested infiltrating microneedle DDS; EYA4 AAV construct designed; DFNA10 in-vivo model & patient-derived iPSC platform active with ABR/DP-OAE PoC plan. Market Opportunity Initial : DFNA10 (EYA4) patients in JP/US/EU (order of several thousands). Rare-disease pricing and high unmet need enable attractive early revenue with limited commercial footprint. Expansion: EYA4-linked ARHL segment within tens of millions of ARHL sufferers worldwide → multi-billion potential as genetics-guided therapy adoption grows. Team Highlights Fujioka (MD, PhD): PI/Clinical lead (Kitasato Univ.). Audiology/genetics, clinical trial leadership, patient access network. Kurashina (PhD): device/DDS inventor. Kina (PharmD): company building & BD.

Key Metrics

Founded / SPARK site

SPARK Japan (Kitsato)

University / Location

Kitasato University & Tokyo University of Agriculture and Technology (TUAT), Tokyo, Japan

Stage

non-clinical PoC

Round

Company formation planning; exploring options.

Investors

seeking strategic investors (gene therapy, inner-ear, device-drug)

Contact E-mail

mtfuji@kitasato-u.ac.jp

APATEYA

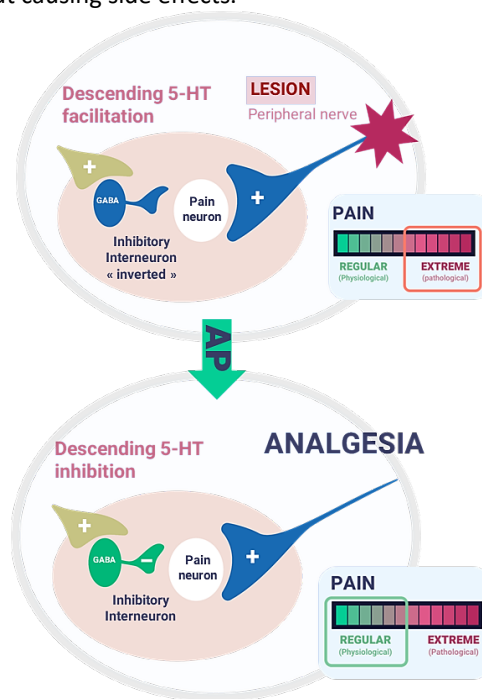
First Curative, Non Opioid Small Molecule Combination Therapy to Treat Neurological Disorders, with a Focus on Chronic Neuropathic Pain

Medical need

Chronic neuropathic pain refers to pain that lasts for more than three months due to an injury or a disease affecting the normal functioning of the somatosensory system (International Association for the Study of Pain, IASP), characterised in the patient by spontaneous pain, hyperalgesia, abnormal pain, or even abnormal sensations. It impacts 8% of the world's population and is associated with direct and indirect costs of \$600B in the USA and €300B in Europe. Chronic neuropathic pain has multiple causes such as diseases (e.g diabetes, Parkinson's disease...), human trauma or intervention (e.g perioperative injuries) or medication (e.g chemotherapy). In addition to severe pain and poor physical health, chronic neuropathic pain in patient is associated with the development of comorbidities such as loss of independence, mood disorders, depression, anxiety, etc., affecting their overall quality of life. Unfortunately, the lack of effective and safe treatment for ~500 million patients worldwide suffering from chronic neuropathic pain creates a significant unmet need associated with a significant human and economic burden. By addressing this vast unmet need, Apateya aims to transform the treatment landscape with the first curative solutions without side effects for neuropathic pain, in order to preserve patients' quality of life and reduce the family and economic burden associated with neuropathic pain.

Product & Solution

APATEYA, a biotechnology start-up specialising in neuroscience, is developing an innovative pipeline of non-opioid, first-in-class, patented or patentable free of side effect positioning first in line treatments for neurological disorder, particularly chronic neuropathic pain (NP) promising relief to ~500Mio patients globally. Our patented combination therapy approach aims to treat the source of chronic neuropathic pain by restoring the physiological balance of endogenous pain signalling without causing side effects.

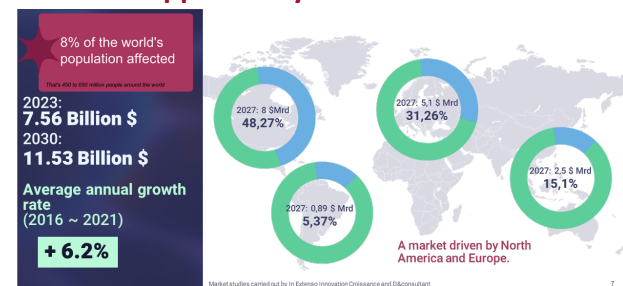


Investment Thesis

Milestones

- ✓ **Strong Preclinical** Proof of Concept (POC) and Efficacy (POE) in multiple animal model.
- ✓ Constitution of a pipeline of 14 molecular combinations.
- ✓ Favorable GLP toxicity and safety profile.
- ✓ **Patents pending with exclusive use agreement** (PCT/EP2022/066761, EP24306680.0 & EP25305061.1)
- ✓ GMP manufacturing, IMPD and clinical trial planning initiated.
- ✓ **Key Partnerships:** Institute of Neurodegenerative Disease, CHU Bordeaux and SPARK Bordeaux (France)

Market Opportunity



Team Highlights

We are a team of experts in the field of endogenous pain control and technological development. Our team includes a pharmacist specialized in neuroscience and clinical research. Scientifically, the team has a profound background in in vivo as well as in vitro experimentation techniques. In addition, one of the co-founders is a financial analyst, and we are assisted by an advisory board comprising clinicians and drug development specialists, thus bringing together all the skills necessary to successfully implement our roadmap.



Key Metrics

Founded / SPARK site

SPARK Bordeaux

University / Location

Université de Bordeaux

Stage

TLR 4/5 : Preclinical research, (Proof of concept and of efficacy of the lead candidate in several animal model with a good GLP toxicity safety profile)

Round

Seed round 4M€ To complete IND/IMPD-enabling studies, GMP manufacturing, and prepare for Phase 1 clinical trials.

Investors

Contact E-mail

Franck.aby@apateya.com

Engineering Macrophages to Treat Cardiac Muscle Calcification

Macrophage Engineering against Cardiac Muscle Calcification



Key Metrics

Founded / SPARK site

SPARK Amrita

University / Location

School of Biotechnology, Amrita Vishwa Vidyapeetham, Kollam, Kerala, India

Stage

TRL-3

Round

Investors

Contact E-mail

indulekhacl@am.amrita.edu

bipin@am.amrita.edu

Medical need

Soft tissue calcification in the heart leads to mechanical and electrical conduction problems, which can ultimately result in heart failure. While there are therapeutic options available to prevent further calcium deposition, there are currently no treatments that can resorb an already formed calcified matrix. In this context, we propose that macrophages can be engineered to function as osteoclasts, reducing calcification when introduced to calcified tissue.

Product & Solution

Engineered macrophages are the product. These cells, when introduced into a calcifying niche, can resorb the already formed calcified matrix and thus treat the condition of calcification. Currently, there are no available drugs that can accomplish this task. As immune cells, macrophages do not carry the same risks associated with cell therapy, such as tumor formation.

Investment Thesis

Milestones

Macrophages can differentiate into osteoclasts, and when engineered macrophages are added to the calcification niche, they exhibit a reduction in calcification in vitro. The current study in the mouse model of cardiac calcification will provide proof of concept that engineered macrophages can resorb calcification in the cardiovascular system. The success of this proof-of-concept will facilitate the advancement of human cardiac organoid-based testing and Phase 1 clinical trials in patients with cardiac muscle calcification.

Market Opportunity

According to IMARC Services Pvt. Ltd., the cardiovascular calcification market reached a value of USD 124.6 billion across the top 7 markets (US, EU4, UK, and Japan) in 2024. Looking forward, the IMARC Group expects the top 7 major markets to reach USD 196.3 billion by 2035, exhibiting a compound annual growth rate (CAGR) of 4.21% during 2025-2035.

Team Highlights

Dr. Indulekha Pillai from Amrita is a well-trained cardiovascular scientist who has demonstrated the progenitors and molecular mechanisms involved in cardiac calcification. **Dr. Carol Gregorio** from the Icahn School of Medicine at Mt. Sinai is a renowned cardiovascular scientist with all the necessary facilities to test the efficacy of engineered macrophages in mouse models of disease. **Dr. Bipin Nair**, from Amrita, has extensive experience in osteoclast biology, will be crucial for the successful completion of the project. Additionally, **Dr. Jackson James**, a senior scientist at RGCB in Trivandrum, has wealth of experience in stem cell and molecular biology that will contribute significantly to the project's success.

The Kitasato Institute: Next-Gen ADC & Cancer Prediction Platform.



ADC for TNBC Targeting a New Antigen & Prediction Platform for Gastric Cancer

Medical need	Product & Solution	Investment Thesis
Triple Negative Breast Cancer (TNBC): - Highly aggressive breast cancer subtype with poor prognosis and limited targeted therapies. - Current standards (chemotherapy ± checkpoint inhibitors) are often ineffective. - The success of HER2-targeted ADCs (e.g., Enhertu in HER2-low breast cancer) and TROP2-targeted ADCs (Trodelvy, Datroway) demonstrates the transformative impact ADCs can have in oncology. - Unmet gap: existing TROP2 ADCs show efficacy but are limited by on-target off-tumor toxicities due to TROP2 expression in normal tissues. HER2 ADC needs at least low-level expression of HER2. Gastric Cancer (post-H. pylori eradication): - Even after eradication, patients remain at elevated long-term risk of gastric cancer. - Current surveillance relies on repeated endoscopies, which are lack predictive accuracy. - There is no reliable biomarker to stratify high-risk individuals for proactive monitoring or intervention. - A predictive diagnostic capable of identifying patients before malignant transformation would represent a paradigm shift in gastric cancer prevention.	Next-Gen ADC (TNBC): - ADC targeting a novel, highly cancer-specific antigen in TNBC. - Preclinical data: Demonstrated efficacy comparable to TROP2-targeting ADCs. - Key differentiation: Unlike TROP2, our antigen is highly restricted to cancer tissue, which suggests the potential for maintaining efficacy while reducing off-target toxicity. - This cancer specificity provides a strong rationale for improved therapeutic index and first-in-class positioning. Cancer Prediction Platform (Gastric): - Biopsy-based, single mRNA detection assay with high predictive accuracy proven by our prospective study. - Uses tissue collected during routine endoscopy (minimally invasive, no additional procedure). - Goes beyond detection: predicts future cancer development in high-risk patients. - Enables early, proactive intervention and tailored surveillance strategies.	Milestones ADC (TNBC): Robust preclinical proof-of-concept; currently unlicensed to preserve strategic value. Cancer Prediction: Patent filed (PCT/JP2023/031975); validation data published (Scientific Reports, 2018). Market Opportunity ADC (TNBC): TNBC represents 10–15% of breast cancers, often in younger premenopausal patients, with higher incidence in Asia and poor 5-year metastatic survival (~12%), making it a high-need group for a cancer-specific ADC. Cancer Prediction Platform (Gastric): ~50% of people are infected with H. pylori globally; gastric cancer is the 5th most common cancer and 4th leading cause of cancer death worldwide (WHO). Team Highlights Core expertise: antibody engineering, translational oncology, diagnostic innovation. Supported by The Kitasato Institute ecosystem. Actively recruiting experienced CEO and CFO with biotech startup and capital strategy track record.

Key Metrics

Founded / SPARK site

SPARK Japan (Kitsato)

University / Location

The Kitasato Institute / Tokyo, Japan

Stage

Pre-seed (ADC preclinical POC achieved; diagnostic patent filed)

Round

Seed round (seeking VC and strategic partners)

Investors

Open for early collaboration

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Taichi Oshiro: oshiro@pharm.kitasato-u.ac.jp
Takashi Fukuyama: fukuyam@insti.kitasato-u.ac.jp

Next-Generation Novel Low-Contractility Hernia Mesh with Superior Anti-Adhesion Properties

Titanium-coated polypropylene mesh for hernia repair



上海交通大学
SHANGHAI JIAO TONG UNIVERSITY

Medical need

The specific problems/challenges being addressed are: Current polypropylene (PP) hernia meshes are associated with chronic inflammation, mechanical mismatch with abdominal tissues, and adhesion formation, leading to issues like pain, recurrence, and infection risks—these are particularly problematic for aging Chinese patients with higher intra-abdominal pressure. Additionally, conventional rough-surfaced polypropylene meshes have risks of adhesion and infection (0.5% incidence), and issues like swelling, shrinkage, and creep.

The current gold standard is tension-free hernioplasty using synthetic meshes, with 80% of the 20 million global annual implants being synthetic meshes (primarily polypropylene meshes).

Product & Solution

Our product is a next-generation novel low-contraction hernia mesh with superior anti-adhesion properties, specifically a titanium-coated polypropylene mesh synthesized via innovative time-modulated magnetron sputtering.

1. Innovative technology: It addresses key limitations of conventional PP meshes through time-modulated magnetron sputtering, enabling thin-film deposition on heat-sensitive polymers with large-scale uniformity.
2. Enhanced performance: Surface/textile engineering optimizes biomechanics to minimize stress concentration and chronic pain. The titanium coating provides exceptional interfacial strength and bio-inertness, reducing adhesion and infection risks.
3. Clinical superiority: It reduces complications and recurrence. With tensile strength >32 N/cm and non-fraying edges, it eases surgical handling while maintaining structural integrity.

Investment Thesis

Milestones

1. A low-temperature plasma-activated physical vapor deposition coating equipment for polymer sheet samples
2. A preparation method of titanium-coated composite polypropylene mesh

Market Opportunity

The product targets Chinese patients needing hernia repair and medical institutions. With 20 million annual global hernia mesh implants and strong demand, its advantages like fewer complications and lower recurrence may gain market share, particularly in China.

Team Highlights

Our multidisciplinary team (material scientists, surgeons, etc.) covers R&D to clinical use. We've validated technology, secured funding, hold patents, and have key publications—making us capable of success, worthy of VC investment.

Key Metrics

Founded / SPARK site

SPARK China

University / Location

Shanghai Jiao Tong University

Stage

Pre-seed

Round

None

Investors

None

Contact E-mail

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Next-Generation Biomedical Hydrogel for Postoperative Wound Sealing and Repair

Medical need

Each year, a large number of patients worldwide face challenges in postoperative wound management following various surgical procedures. Effective sealing and repair of surgical wounds are critical for preventing infections, promoting healing, and reducing complications. Improper wound treatment may not only delay healing and increase patient discomfort and healthcare costs, but also lead to severe or even life-threatening conditions such as sepsis. However, the field of postoperative wound care still faces numerous unresolved challenges, making the development of more efficient and safer wound management products an urgent priority.

With the continuous advancement of biomedical technologies, hydrogels have emerged as a highly promising class of biomaterials for wound treatment. Hydrogels are polymeric materials with a three-dimensional network structure capable of absorbing large amounts of water while maintaining a defined shape. Their unique physicochemical properties and excellent biocompatibility make them well-suited for wound sealing and repair. By mimicking the extracellular matrix environment, hydrogels provide favorable conditions for cell adhesion, proliferation, and differentiation, thereby facilitating wound healing.

Product & Solution

Traditional suturing procedures require skilled healthcare professionals and are difficult to perform rapidly in emergency situations or for complex wounds. These methods are time-consuming and may delay timely treatment. Moreover, they often cause secondary damage to surrounding tissues, leading to increased pain and delayed healing—especially in cases of large-area or fragile tissue wounds, where such drawbacks are even more pronounced.

In addition, current tissue adhesives such as fibrin glue exhibit low adhesion strength (typically only 5–10 kPa) and are prone to detachment at the wound site. This limits their ability to maintain effective wound closure, particularly when the wound is under tension or subject to movement, significantly compromising sealing and healing performance. Furthermore, the degradation rate of many existing adhesives in vivo cannot be well matched with the wound healing process. If degradation occurs too quickly, the adhesive may lose its function before the wound is fully healed; if too slowly, prolonged retention may trigger foreign body responses.

Investment Thesis

Milestones

1. Strong Adhesion Performance – Enhanced gel adhesion is achieved through a synergistic strategy combining covalent anchoring, hydrogen bonding, and dynamic chemical interactions, resulting in a shear adhesion strength up to 100 kPa. 2. Competitive Mechanical Strength – The hydrogel exhibits remarkable stretchability with strain exceeding 400%, and a tensile strength over 50 kPa, meeting the demands of dynamic physiological environments. 3. Excellent Biocompatibility – Fully meets the requirements of in vitro cellular assays, demonstrating high potential for biomedical applications.

Market Opportunity

Target patient population: individuals undergoing surgical procedures requiring occlusion and repair, spanning cardiothoracic surgery, respiratory medicine, general surgery, gynecology, and related specialties. Post-operative occlusion and repair hydrogels constitute a high-end niche within the medical-grade hydrogel segment. The global market is projected to reach USD 1.93 billion in 2025, representing 7.2 % of the overall medical materials market. Over the next five years, breakthroughs in biodegradable materials are expected to drive a compound annual growth rate (CAGR) of 12.5 %, propelling the market beyond USD 3.5 billion by 2030.

Team Highlights

First, as a university research team, we have long been engaged in research related to bio-based new materials and have published a series of high-impact papers in this field. Second, the product itself demonstrates exceptional performance, both in the lab and in practical applications. Additionally, the development of this product stems from urgent clinical needs; through in-depth collaboration with multiple hospitals in Shanghai, we have confirmed the significant market potential for such innovations.

Key Metrics

Founded / SPARK site

SPARK China

University / Location

Shanghai Jiao Tong University

Stage

Pre-seed

Round

None

Investors

None

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Get to know
SPARK
Sites

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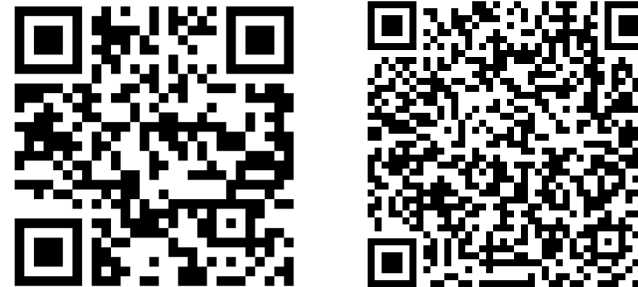


- ❑ Biotherapeutics – production of inhibitory antibodies in chicken egg yolk
- ❑ Biomarkers for disease risk – Open array panel development for variants that predict women at risk of pre-eclampsia
- ❑ Pharmacogenomic Diagnostics – Open array, targeted genes NGS, and WES based tests to guide drug and dose selection for safe and effective treatment

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<https://spark.aibst.org>

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SPARK Alberta is a one-year, hybrid, mentorship program for digital health innovators at Alberta, Canada's post-secondary institutions. We connect early-stage academic digital health innovations with real-world industry insights, helping prepare them for long-term sustainability and successful integration into clinical practice to benefit patients. SPARK Alberta is located at the W21C Research and Innovation Centre and funded by the Alberta Innovates.

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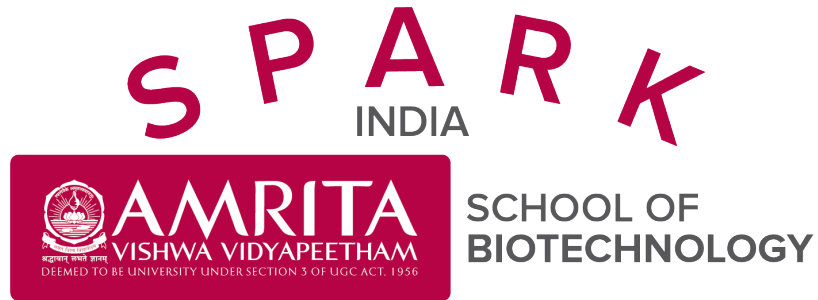
Scott Kraft - Director
skraft@ucalgary.ca

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<https://www.w21c.org/spark/>

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Drug Delivery Systems: Highly Affordable Insulin Pump and Hybrid-Closed Loop Artificial Pancreas System

Diagnostics and Detection: Development of affordable POT (Point of Testing) devices for monitoring of AMR in clinical and Environmental settings

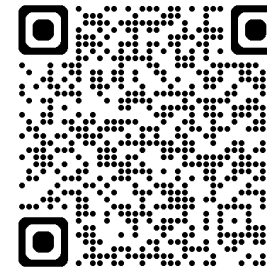
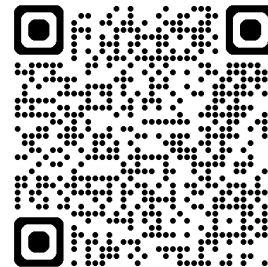
Therapeutics: Macrophage engineering against cardiac muscle calcification

Contact details

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SPARK China - A SPARK Center of Excellence in MedTech

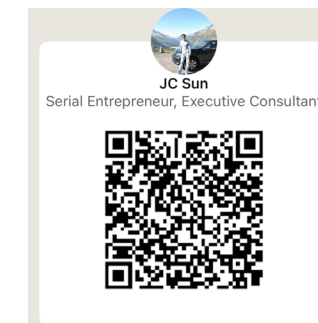
- Quick-turn engineering support and rapid prototyping capabilities, leveraging our strong CDMO partners and platforms in China and USA.
- NMPA and TFDA regulatory expertise and know-how for mainland China and Taiwan.
- Engineering solution development and rapid prototyping.
- Biomaterial R&D, medical use chip and sensor design.

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Welcome to visit SPARK China in Shanghai, China; or meet me in San Francisco, California!

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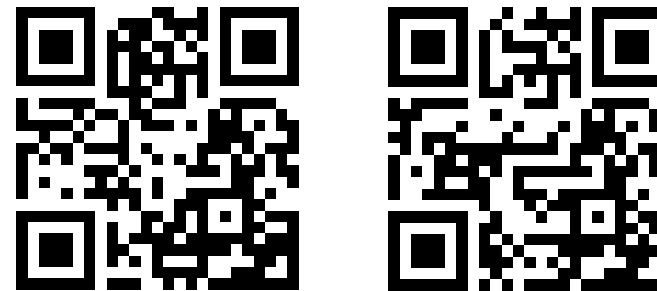


The research activities of the Faculty of Medicine cover practically the entire spectrum of biomedicine, from basic medical research to clinical medicine. In particular, innovative diagnostic, therapeutic and surgical procedures are used. Our areas of excellence are innovative therapies, stem cell research, tissue and regenerative engineering, oncology, neurosciences, cancer biology, molecular biology, cellular biology, reproductive medicine, microbiology, cardiology, and genetics.

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SPARK Denmark is a mentoring programme that supports academic inventions in life science with professional mentorship from industry experts, education within innovation, and financial support. The aim is to bridge the gap between academia and business while supporting the further development of research results toward commercialization.

The vision is to improve translation of academic projects with a high impact potential and to drive the development of new solutions and products to benefit people and society.

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Currently no
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Denmark
LinkedIn

[SPARK Denmark
– University of
Copenhagen](#)

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SPARK-BIH supports:

Projects from all medical indications developing therapeutics (small molecules, drug repurposing, preventives, ATMPs), diagnostics and medical devices within Charité Universitätsmedizin Berlin and the Berlin Institute of Health (BIH).

Under the mandate of the German national strategy for gene- and cell-based therapies (GCT), we support GCT Projects within Germany.

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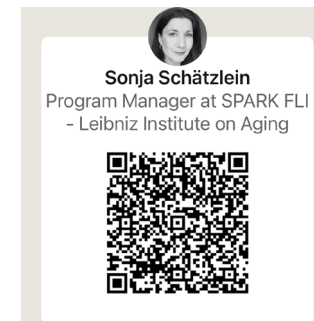


- Focus on aging and age-related diseases (e.g. oncology, neuropathies, depression, IBD, stroke)
- Early pre-clinical drug/diagnostic development
- Most projects still in discovery phase but with novel targets/pathways/biomarkers
- Collaborating with smaller SPARK-Programs to increase critical mass
- Co-organizing SPARK-Europe Webinar Series

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Haifa and Northern Israel

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SPARK Haifa and Northern Israel

Our program brings together researchers, physicians, and entrepreneurs from Rambam Health Care Campus and other hospitals and research institutes across northern Israel, fostering collaboration and innovation in the life sciences.

By creating a diverse community of Jewish and Arab scientists, clinicians, and students, SPARK Haifa and Northern Israel promotes not only scientific advancement but also cross-cultural collaboration, strengthening both research and society.

Our vision is to transform innovative ideas into impactful therapies while building a collaborative ecosystem of excellence in biomedical research throughout northern Israel.

Find out more by visiting us or contacting us



Contact details

Co-Directors:

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Nobuaki Shindo (nobuaki.shindo@keio.jp)

SPARK Keio Design and Implementation:

Ryosuke Munakata (munakata@keio.jp)

SPARK Keio is a SPARK program at Keio University. We support translational research by academic investigators across Japan in therapeutics, diagnostics, and medical device projects to deliver products to patients with unmet needs.

- Design of SPARK Keio such as vision/mission/values, selection criteria, year-round regular meetings with industry advisors, and a Community of Practice has been established aligning with the SPARK model.
- Activities for Cohort 1 with 9 projects (7 drugs, 2 medical devices) just have been launched in September 2025.
- SPARK Keio has been established for the long term, with initial support from a Japanese government program (through March 2029, ~USD 20M) to build a startup ecosystem at the university.

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The SPARK Keio website will open by the end of 2025.

Find out more by visiting us or contacting us



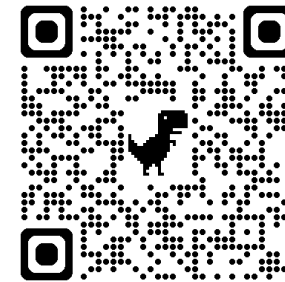
Advances discoveries from academia and hospitals towards practical solutions through education, mentorship, advising and milestone-based funding.

Strong projects/spinouts in a number of different life science areas including therapeutics, diagnostics, medical devices, vaccines, drug discovery tools and animal health

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www.uio.no/life-science/spark

Find out more by visiting us or contacting us



Our goal is to bridge the gap between ideas developed in the laboratory and their application in clinical practice in Poland. We aim to foster closer collaboration between scientific teams and Technology Transfer Offices. Through the SPARK Poland mentoring program, we support the advancement of therapeutic and diagnostic solutions, as well as medical devices. In the 2025 edition of the program, we are supporting three teams from three different Polish institutions, all working on drug development projects. The current edition is funded by the Ministry of Science and Higher Education Republic of Poland.

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Since 2018



JAPAN



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<https://www.youtube.com/@t-credo8491>

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SPARK

THE MIDLANDS

SPARK The Midlands has a strong regional focus in the UK; rooted in the Midlands innovation system, it provides tailored support to academics, healthcare professionals and entrepreneurs by leveraging local partnerships, funding opportunities, and community networks. SPARK The Midlands is designed to showcase and accelerate groundbreaking research and innovation occurring outside of the 'Golden Triangle,' highlighting the Midlands as a hub of world-class science and enterprise.. As the first programme in the UK, this focus ensures that ventures here receive the most relevant guidance, mentorship, and growth opportunities, while still benefiting from SPARK's international reach.

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www.sparkthemidlands.co.uk

Find out more by visiting us or contacting us



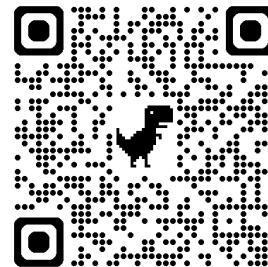
SPARK Western Switzerland is run by the **Innovation Office of the University of Basel** and brings together projects from the University itself, the **Federal Polytechnic University of Lausanne (EPFL)**, the **University Hospital Basel (USB)** and the **University Children Hospital in Basel (UKBB)**.

What makes SPARK Western Switzerland unique is its combination of a large mentor pool with deep industry experience, privileged access to the pharma industry ecosystem, connections to a large pool of venture capital funds, and access to the whole innovation and entrepreneurship cross-border ecosystem between Switzerland, France, and Germany.-

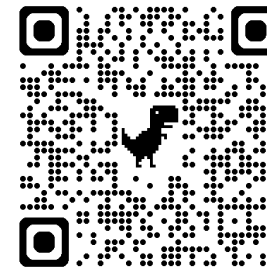
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Website QR Code



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Link to our website:
<https://www.innovationoffice.io/sparkwesternswitzerland>



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what is
coming next

GeneNovate Investors' Day

Save the date | June 9th, 2026 | Berlin



GCT

National Strategy
Gene- and Cell-Based Therapies
GeneNovate

Unlocking the Potential of Gene- and Cell-Based Innovations

Why?

- Strengthen the dialogue between science, industry & venture capital
- Showcase success stories and role models
- Connect research, entrepreneurship, and value creation, e.g., gene and cell therapies

For whom?

- Start-ups and translational projects in gene- and cell-based innovation
- Experienced investors from EU and beyond
- Industry representatives and experts

Get in touch if you'd like to be involved in the next edition:

Nadja Pahl

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Facts and Highlights from the 1st Edition in 2025:

- Over 350 international guests with a strong connection to CGT
- High quality of the pitches & projects
- truly pan-European energy in the room
- Presence of decision-makers and VCs at partner level
- Audience showing remarkable focus and commitment
- Well-curated panel discussions with relevant themes
- Excellent opportunities for networking, with many valuable conversations during the breaks and after the event

Impressions from the
1st GeneNovate Investors' Day 2025





Berlin - 2025