SPARK

Europe Showcase

13th and 14th March 2025
Birmingham, UK

Aston University
BIRMINGHAM UK

SPARK
THE MIDLANDS

The SPARK Europe Showcase is delivered as part of Aston University's active involvement in the delivery of the West Midlands Health Tech Innovation Accelerator (WMHTIA). The WMHTIA is funded by the Department for Science, Innovation and Technology, in partnership with Innovate UK and the West Midlands Combined Authority.

wmhtia

Department for Science, Innovation & Technology

UKRI Innovate UK

West Midlands Combined Authority

This brochure and showcase is held in collaboration with the SPARK Europe cohorts.

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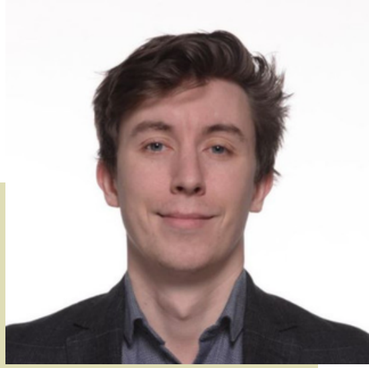
SPARK FACULTY OF MEDICINE, MASARYK UNIVERSITY

Foreword



Welcome.

This is going to be something special.

It’s a rare opportunity to be able to get so many people together who are so dedicated to driving forward real change. And to be able to do it here, in Birmingham, is particularly special to me.

I grew up here and have watched a city grow and transform for the better and it is a pattern mirrored by the teams we support on SPARK. I’ve had the honour of being the first UK SPARK director for about 18 months now and it’s stunning to see how driven our teams have been in taking their work through the challenges of the preclinical space, towards patients and towards improvements for all of us.

It's worth me quickly refreshing people who aren’t so familiar with SPARK what exactly it is these programmes do.

They drive forward, over years, programmes of work coming from some of the world’s leading academic and medical institutions into real world clinical use.
In the UK we rate potential projects on three simple questions.

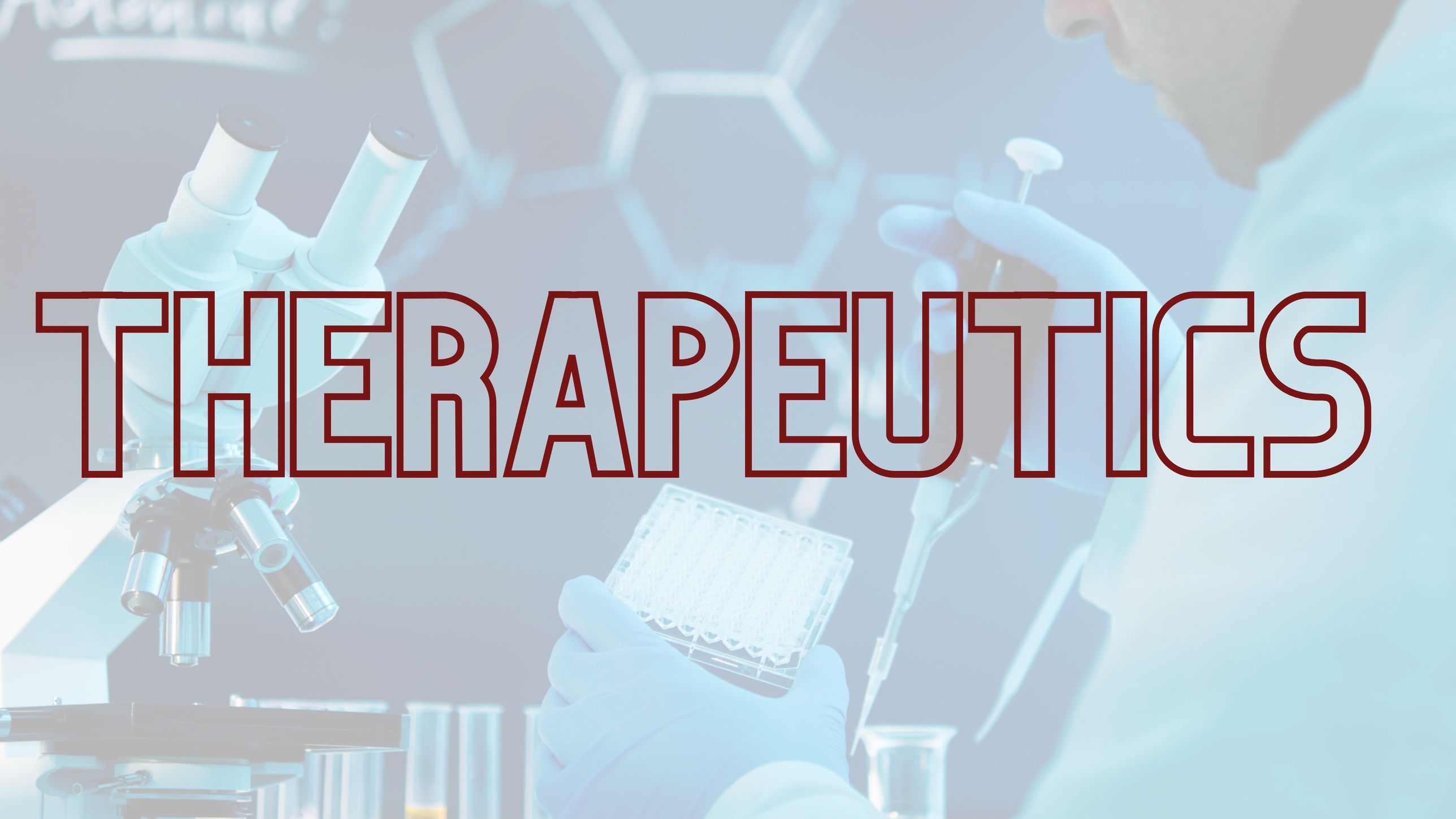
1)Does this work address a genuine Unmet Clinical Need?
2)Can this programme really get through clinical trials?
3)Can this group raise the money needed to get to a launched product?

The pages of this brochure will show you dozens of companies and projects that hit these criteria. Then what makes SPARK special is the people around the edges who help show to both the teams and the world that these groups are able to say yes to all three of these questions. There is a genuine world of support that SPARK brings to its cohorts and this will be evidenced in full force over the next couple of days.

I hope all of you reading this also recognise that you are part of this support system now. And I would endeavour to you all that any project you see where you think you can help them, be that clinically, going for grant funding, sharing past experiences or with cold hard cash (!!) approach the team and let them know that you want too, and can help.

Fundamentally what I hope we all can gain from our two days together is an understanding that together, as a European cohort, we are far more likely to drive the work we carry out to its fullest potential than when we try and do these things in isolation.

Luke


THERAPEUTICS

Akasi Pharma

Non-opioid therapeutics to treat peripheral neuropathic pain

Mission

7–10% of the population suffer from peripheral neuropathic pain, a chronic pain that is often severely debilitating. Unfortunately, the majority of patients do not find sufficient relief from current options, which also come with a sleuth of detrimental side effects. This leaves a large unmet need in this large and rapidly growing market.

Our initial target indication is peripheral diabetic neuropathy (DPN), with a lifetime incidence of more than 50 % for diabetics.

We will subsequently expand to other peripheral neuropathic pain indications, incl. chemotherapy-induced, post-herpetic, etc.

Product & Solution

Our small peptide leads are the most potent and selective compounds ever described at the intriguing new pain target, the somatostatin receptor 4 (SSTR4).

The SSTR4 was recently clinically validated in a competitor's phase 2 trial for DPN, although this asset revealed a high prevalence of adverse events, including several central nervous system (CNS) side effects.

Our assets are efficacious in rodent models, while not entering the CNS, thereby reducing the risk of serious side effects.

We are undergoing lead optimization, and expect our clinical candidate in Q1 of 2026

Investment Thesis

Impact:
Current options do not work for most and come with serious side effects and a large addiction potential, which are not expected for our asset. Our most direct competitor is Eli Lilly's SSTR4 asset, LY3556050. We differentiate by providing a long-acting solution with a superior safety profile.

Market Opportunity:
In the seven major markets (7MM), 46.7 M patients suffer from peripheral neuropathic pain and the total addressable market (TAM) is $5.5 B. Our initial focus indication is diabetic peripheral neuropathy (DPN) with a TAM in the 7MM of $2.9 B.

Team Highlights:
We have a stellar core team including both relevant scientific and entrepreneurial expertise and experience. nanoparticle engineering, and translational medicine.

SPARK DENMARK

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Alligamycin

A novel class of antibiotic to treat aspergillosis

Mission

Invasive Aspergillus infections cause around 3.8 millions of deaths yearly, and are rising among patients who are immunocompromised or have severe respiratory diseases. There are only four classes of antifungal drugs which clinical use is limited by high toxicity, drug-drug interactions and rising resistance. The world market for antifungal agents is currently worth US$14.8 billion with consistent annual growth driven by year-over-year increases in the susceptible immune compromised patient population. Novel classes of antifungals with unprecedented mechanisms of action are therefore in high need.

Product & Solution

•A novel class of antifungal drug candidate alligamycin A, which is active against Aspergillus pathogens, such as Aspergillus flavus, Aspergillus nigerand Aspergillus tubingensis;

•The drug lead can be produced by bacterial fermentation;

•Low to no toxicity by tolerability assay in mice

Investment Thesis

Impact:
Alligamycin targets resistant *Aspergillus*, with a new mode of action and low toxicity

Market Opportunity:
Patients with *Aspergillus* infections.

Team Highlights:
Team with experience in both business and science, and supported by soft funding from NovoNordisk Foundation.

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A novel approach for precise & gene-sized integration of DNA – “One-pot” PASTA

Gene editing technology for ATMP

Mission

We aim to develop a non-viral gene editing platform for targeted and efficient delivery of large DNA, overcoming the limitations of current gene transfer methods for cell and gene therapies.

Current gene transfer methods for ATMPs rely on random transgene integration via retro/lenti- or adeno-associated virus (AAV) systems, posing risks of insertional mutagenesis and thereby impacting safety and translation. These systems are also limited by viral packaging capacities, preventing the delivery of large, therapeutic gene cassettes.
Additionally, GMP-grade production of viruses is costly and slow, delaying clinical translation of innovative ATMPs.

Product & Solution

We have engineered a novel, large serine integrase that achieves more efficient recombination in primary human cells than the current standards Bxb1 and PhiC31.

This novel integrase can be used for precise and efficient non-viral gene transfer using our recently developed “One-pot” PASTA (**P**rogrammable **a**nd **S**ite-specific **T**ransgene **A**ddition) system in a simple one-step procedure.

PoC data demonstrates that “One-pot” PASTA outperforms conventional genome editing methods when integrating large transgenes exceeding 6 kb into primary human T cells.

Investment Thesis

Impact:
Non-viral vectors and precision gene editing reduce costs and improve the safety of cell and gene therapies.

Market Opportunity:
Utility for a wide range of approaches:

- Creating advanced CAR/TCR-T cell therapies for treatment of refractory cancers more cost effectively and with higher long-term safety (in-house, co-development, potential licensing)
- Developing gene therapies for diseases requiring large gene transfers, e.g. universal gene replacement approaches, correction of large deletions (currently only licensing).

Team Highlights:
Dynamic team with cutting-edge genome editing technologies.

SPARK BIH

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ARGONAUT

A therapeutic cancer vaccine targeting cell surface tumour-associated carbohydrate antigens (TACAs)

Mission

Cancer immunotherapy has emerged as the fourth pillar in cancer therapy, however only 30% respond because of a lacking adaptive response.
Thus, therapeutic cancer vaccines are a promising avenue aimed at stimulating the patient's adaptive immune system which is central to set up an effective anti cancer immune response.

We have developed a cancer vaccine technology based on the stimulation and activation of iNKT cells by the glycolipid α-galactosylceramide that will effectively teach the immune system to fight a potential cancer.

Product & Solution

The product is a four-component anti-cancer vaccine, consisting of a liposome with αGalCer conjugated via linker to a ganglioside carbohydrate antigen on its surface. It works by activating iNKT cells via α-galactosylceramide. In turn, this activation enhances the immune response against the chosen carbohydrate antigen. By conjugating the carbohydrate antigen to αGalCer, the vaccine promotes antigen-specific antibody production, triggering the adaptive immune system.

In this setup, iNKT cell activation serves a dual role—stimulating both the adaptive and innate immune systems—allowing the body to combat potential disease with maximum efficiency.

Investment Thesis

Impact:
In comparison to traditional anti-cancer treatments, this TACA-based anti-cancer vaccine offers precision against specific, hard-to-treat cancers. It engages both the innate and the adaptive immune system, increasing efficiency and has a high potential for a long-term effect and lasting immunity.

Market Opportunity:
Small-cell lung cancer. 330 000 cases/year, 5-year survival rate: 7%.
Market size in the 8MM was valued at 700 MUSD in 2019 and is estimated to reach 2.4 BUSD by 2029 equaling a CAGR of 12.9%.

Team Highlights:
PI with >20 years of academic research experience, co-founded three companies. Team members with experience in immunology, vaccines, formulation.

SPARK DENMARK

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Autologous cell-based therapy for coagulation factor deficiency

UNIVERSITY OF OSLO

Cell therapy for inherited bleeding disorders and thrombophilias

Mission

Coagulation factor deficiencies are a wide spectrum of hereditary, monogenic disorders affecting the blood coagulation system, resulting in pathophysiological bleeding or thrombosis. The current therapeutic treatment requires frequent and life-long administrations, given either prophylactically or on-demand, or both, which are not targeting the disease cause, do not completely abolish the clinical phenotype and are associated with adverse effects.

Product & Solution

By correcting the disease in the patients' own pluripotent stem cells, we are able to produce therapeutic, tri-dimensional liver organoids recapitulating liver functions and cellular complexity, including the secretion of all the previously compromised blood coagulation factors. We are set to demonstrate that a single infusion might provide lifelong treatment with no eligibility, toxicity or immune-associated restrictions.

Investment Thesis

Impact:
Life-long therapy with no expected toxicity or immune reaction.

Market Opportunity:
Coagulation factor deficiency market (2023) was ~13,5 billion USD.

Team Highlights:
Scientists and clinicians with different competence from academia and industry:
Giacomo Roman (Project leader)
Benedicte Stavik
Maria E. Chollet
Gareth J. Sullivan
Christian Qvigstad
Anindita Bhattacharya
Knut H. Lauritzen
Per Morten Sandset
Erlend Ragnhildstveit (Coordinator)
Luise Weigand (Mentor)

SPARK NORWAY

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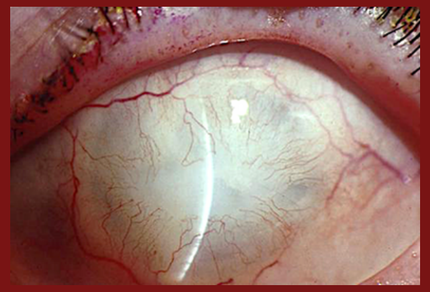
CEPTAL

Peptide-based drug for the treatment of fibrosis

CHARITÉ
UNIVERSITÄTSMEDIZIN BERLIN

Mission

Diseases, associated with a vast loss of function usually result from misguided wound healing or fibrogenesis. Fibrosis is the underlying cause of death in 40% of all deaths. Yet, no causal therapy for fibrotic diseases in general exists.
In particular, ocular fibrosis displays an unmet medical need, including the scar formation on the cornea, leading to blindness.



Blindness due to corneal scar

Product & Solution

The team developed a novel peptide-based antifibrotic therapy and showed its efficacy in vitro and in vivo in a mouse model of corneal fibrosis. In addition, ADMET, stability, toxicology and safety studies were performed.

Corneal scar in mice before (naive) and after treatment

Investment Thesis

Impact:
Despite many trials, no therapy for fibrosis exist.

Market Opportunity:
Corneal diseases lead yearly to **800 000** new cases of fibrosis and corneal scars in US and Europe.

Team Highlights:
Clinical and research expertise.

SPARK
BIH

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Comitell

Encapsulated Bioactive Mitochondria for Cell Transportation

Mission

To tackle the unmet clinical need for effective therapies in mitochondrial diseases by developing innovative encapsulation technologies that restore mitochondrial bioenergetics and improve cellular function, offering a groundbreaking approach to treat diseases characterized by mitochondrial dysfunction.

Product & Solution

Comitell® is an advanced encapsulation technology utilizing Metal-Organic Frameworks (MOFs) to preserve mitochondrial bioactivity for up to four weeks. This approach provides a stable and bioactive delivery system that overcomes barriers to mitochondrial uptake and function, enabling sustained therapeutic effects. It is a versatile platform targeting mitochondrial diseases and holds potential applications for improving outcomes in cancer therapies by reprogramming the tumor microenvironment.

Investment Thesis

Impact:
Comitell® transforms mitochondrial disease treatment by restoring cellular energy and improving outcomes. Its innovative approach overcomes traditional therapy limitations, unlocking new therapeutic potential.

Market Opportunity:
Mitochondrial dysfunction is central to many diseases, from rare genetic disorders to common conditions like neurodegenerative diseases. Comitell® targets specific mitochondrial diseases initially but can expand to broader markets, addressing unmet medical needs.

Team Highlights:
Our multidisciplinary team at Åbo Akademi University combines expertise in mitochondrial biology, nanoparticle engineering, and translational medicine.

SPARK FINLAND

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Crossing Bio

Rethinking fibrosis treatment by combining GLP-1R agonist therapy with first-in-class anti-fibrotic MFAP4 antibody

Mission

The number of patients suffering from metabolic disorder diseases such as diabetes, obesity and metabolic steatohepatitis (MASH), is increasing. Fibrosis is the ultimate pathological feature of many metabolic disorder diseases, and fibrosis incidence is on the rise worldwide. Fibrosis of vital organs will result in organ dysfunction and is the strongest predictor of metabolic-associated comorbidities and mortality in MASH. Metabolic drugs like GLP-1 agonists show promising effects in treatment of metabolic disease. Arresting the fibrotic processes will be needed to fully handle the pathology of MASH, and we suggest this to be achieved through drug combinations with direct anti-fibrotic drugs, such as our new antibody.

Product & Solution

We have developed a new anti-fibrotic therapy. The lead is a humanized monoclonal antibody, with good tolerability, stability and pharmacokinetic properties. It blocks an extracellular matrix molecule, MFAP4, which is an enriched product of fibrosis. The therapy breaks cellular MFAP4 anchorage in matrix and thereby inhibits the capacity of the cell to respond to growth factor signals driving the fibrotic process.
The new therapy will address the unmet medical need in reduction of organ fibrosis for indications such as MASH. The new therapy has demonstrated preclinical efficacy in liver, renal, ocular and intestinal fibrosis.

Investment Thesis

Impact:
IThe metabolic drugs Rezzdiffra and GLP-1R agonists Semaglutide, Tirzepatide and Survodutide have shown antifibrotic efficacy of up till 26% improvement in liver disease. Uniquely, our patented therapy directly interferes with pathways involved in fibrogenesis. This sets our new therapy aside from other drugs in development. We are rethinking fibrosis treatment trough combining GLP-1R agonism and blocking of cellular anchorage to extracellular matrix MFAP4.

Market Opportunity:
Liver fibrosis: ~ $16B with CAGR of 11% (2023-33).

Team Highlights:
Our team comprises experienced business developer, and specialists in matrix biology, antibody design and production.

SPARK DENMARK

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DecoDerma

Bi-specific therapeutic recombinant protein for rare skin disease

Mission

DecoDerma is developing a bi-specific/multi-functional, systemic recombinant protein to cure a rare pediatric skin disease, recessive dystrophic epidermolysis bullosa (RDEB).

Product & Solution

Our molecule is a bi-specific recombinant, fusion protein that has:

1.targeting peptide domain (homing & cell penetrating peptide) for a delivery to normal skin and skin wounds.

2.Decorin, an anti-inflammatory and anti-fibrotic protein, as an active therapeutic component.

Investment Thesis

Impact:
Demonstration of extended survival in EB mice (better than any previously tested therapeutic, including recombinant col7a1 or stem cells).

Market Opportunity:
Lethal skin disease affects 12 000 patients world-wide.

Team Highlights:
·Focused drug development program in severe rare disease with urgent unmet medical need
·Secondary indications (w. existing POC-data) beyond rare disease indication
·POC studies performed.
·Marketing exclusivity for 10 – 12 y (ODDs).
·Lethal disease, pediatric target population and lack of treatment provide basis for higher rare disease pricing

SPARK FINLAND

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DepMYC

Mitochondria Unplugged: Revolutionising Cancer Treatment with Novel Inhibitors

UNIVERSITY OF HELSINKI

Mission

Currently, there are no curative therapies for most advanced cancers and most standard-of-care regimens have adverse effects impacting patient's quality of life.

Contrary to earlier views, mitochondrial respiration is fundamental for cancer growth and spreading. The specific dependence of cancer cells of respiration has exposed new targets for the development of drugs, which are harmful only for cancer cells while leaving healthy cells unharmed.

Therefore, targeting mitochondrial respiration offers revolutionizing opportunities to develop safe drugs for treatment of wide variety of life-threating advanced cancers.

Product & Solution

Our approach is designed to target the altered mitochondrial respiration in MYC(HIGH) cancer cells, which molecular phenotype features 70% of all cancers.

The preclinical evidence indicates that our mitochondrial respiration targeted novel inhibitors are:

- Selectively cytotoxic to cancer cells
- MYC-selective in cells and organoids
- Efficacious in CDX and PDX models of aggressive MYCHIGH breast cancer
- Well-tolerated in vivo
- Pharmacokinetically feasible with broad therapeutic window

Investment Thesis

Impact:
The first-generation inhibitors of mitochondrial respiration have had safety concerns. Our novel compounds are carefully designed with special considerations for safety yet not compromising efficacy:

- Molecular docking analysis
- MYC(HIGH) companion diagnostics

Market Opportunity:

- Aggressive, solid and haematological cancers
- All major cancer types
- Combinations with immuno-oncological treatments
- Overcome therapy-resistance

Team Highlights:
Dedicated drug and assay development team led by pioneers in MYC synthetic lethal cancer research

SPARK FINLAND

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DropByeDrop

A Bimonthly Drug to Simplify Glaucoma Care

UNIVERSITY OF EASTERN FINLAND

Mission

Canine glaucoma affects approximately 2% of all dogs, causing not only vision loss but significant pain that can severely reduce quality of life. Left untreated, it can lead to permanent blindness and often necessitates eye removal. Current treatments demand eye drops every 8–12 hours — a time-consuming routine for pet owners and an added stress for dogs. At DropByeDrop, our mission is to simplify glaucoma care, preserving vision and improving the well-being of pets and their families.

Product & Solution

Our breakthrough single-dose eye drop maintains reduced intraocular pressure for up to two weeks — a game-changer compared to today's daily or multiple-times-daily treatments. Preclinical tests demonstrate a significantly extended duration of pharmacological action from just one administration. Our pharmacokinetic data confirm dramatically enhanced drug exposure in target ocular tissues, ensuring sustained therapeutic effect and reducing the burden on both pets and owners.

Investment Thesis

Impact:
By shifting from daily drops to a single treatment that can last two weeks, we dramatically improve adherence and convenience. This not only lightens the workload for pet owners but also ensures more consistent, effective management of canine glaucoma.

Market Opportunity:
The global veterinary ophthalmology market is on track to reach $9.6 billion by 2029 (CAGR of 3.56%). In the U.S. alone, there are an estimated 1.8 million canine glaucoma cases. As a simpler, longer-lasting, and more effective treatment, DropByeDrop stands to capture a significant share in this underserved market niche.

Team Highlights:
Dr. **Stanislav Kalinin** (50 peer-reviewed publication), Prof. **Arto Urtti** (global leader in ophthalmic drug development, Prof. **Peter Wipf** (leading expert in drug discovery, co-founder of two biotech companies).

SPARK FINLAND

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Engineered NK-EVs for Targeted Therapy in Breast Cancer

UNIVERSITY OF OSLO

Mission

There is a lack of effective treatment options for Triple Negative Breast Cancer (TNBC) when standard of care fails. Our innovation is potentially a disruptive therapy with a novel mechanism of action tailored for efficacy in solid tumors.

Product & Solution

The innovation is extracellular vesicles (EVs) derived from Natural Killer (NK) cells engineered with a targeting unit towards a subset of TNBC.

The vesicles are natural nanosized lipid particles that contain the powerful cytotoxic capacity of NK cells. Their small size is advantageous for penetration into tumors.

We have shown efficacy of the engineered vesicles against cancer cells expressing the relevant targeted marker, and will as a next step test their efficacy in vitro and in vivo against TNBC over-expressing the relevant marker.

Investment Thesis

Impact:
Natural lipid nanoparticles derived from cells are not yet in the clinic, and we are thus in the race of developing the first successful EV product for cancer therapy.

Market Opportunity:
There is an increased incidence of TNBC that drives innovation in targeted therapies and immunotherapies. The global TNBC drugs market was valued at approximately $600 million in 2022.

Team Highlights:
Cross-disciplinary team with expertise in oncology, protein manufacturing, immunology and cancer immunology, and drug development.

SPARK NORWAY

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EpiBlok Therapeutics GmbH

Gene therapy for temporal lobe epilepsy

Mission

EpiBlok's develops a once per life gene therapy offering lasting seizure freedom to patients suffering from drug-refractory temporal lobe epilepsy (TLE).

Product & Solution

EpiBlok has developed an AAV-based gene vector that suppresses focal seizures by a one-time, minimally invasive delivery into the CNS. AAV-derived dynorphin dampens seizure development. Dynorphin is produced and stored in neurons and only released upon high-frequency stimulation, as is the case at the onset of seizures. Among gene and cell therapies under development for temporal lobe epilepsy, EpiBlok's AAV-pDyn is unique due to its "release-on-demand" format of drug delivery, which prevents the long-term risk of habituation (PCT/EP2017/064692; PCT/EP2023/077251).

Investment Thesis

Impact:
The current gold standard are antiseizure drugs which often fail and have severe side effects. Epilepsy surgery is effective but invasive, yet cannot garantee for lasting seizure freedom either. AAV gene therapy with dynorphin is a tissue saving, minimally invasive, one-time therapy.

Market Opportunity:
Of 1.7M chronic TLE patients in Europe, North America and Japan, at least 300,000 are drug-refractory, and >20,000 yearly new cases arise.

Team Highlights:
Founder team with 20+ years of scientific expertise and 10+ years of collaboration: CEO R. Heilbronn, MD/MBA (AAV-technology and gene therapy); CSO, C. Schwarzer, PhD (neuropharmacology/ animal models of epilepsy).

SPARK BIH

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Estuar

Targeting the brain's water channels

ESTUAR PHARMACEUTICALS

Mission

Estuar Pharmaceuticals is a pre-clinical stage, Drug Development Company looking to revolutionise the standard of care for patients suffering a cerebral edema and in turn build a pipeline of therapeutics that interact with the Glymphatic System.

Cerebral Edema is caused by events such as Traumatic Brain Injury, Spinal Cord Injury, Stroke, Cancer and Neurosurgery. As a pathophysiology, it has a global incidence of over one hundred million patients annually. Yet the standard of care for these patients is extremely poor, limited to hyperosmolar therapy, sedation and neurosurgery. Outcomes correlate with the severity of the edema but include disability, cognitive impairment and, in many patients, death.

Product & Solution

Based around world-leading research into **Aquaporin Biology**, the team led by **Prof. Roslyn Bill** have elucidated a novel molecular pathway that shows incredible promise for reducing the swelling that occurs after a traumatic cerebral event.

Pipeline of compounds for this indication built out of several million in grant funding. Further compounds that enhance the activities of the glymphatic system and therefore have potential to revolutionise treatment for neurodegenerative diseases also in development.

Investment Thesis

Impact:
Traumatic Brain Injury completely lacks useful pharmacological interventions and is a major cause of death globally.

Market Opportunity:
>15,000,000 patients annually lack appropriate treatment for cerebral edema.

Team Highlights:
CEO leads UK SPARK preclinical accelerator, CSO is leader in the field of Aquaporin Biology

SPARK THE MIDLANDS

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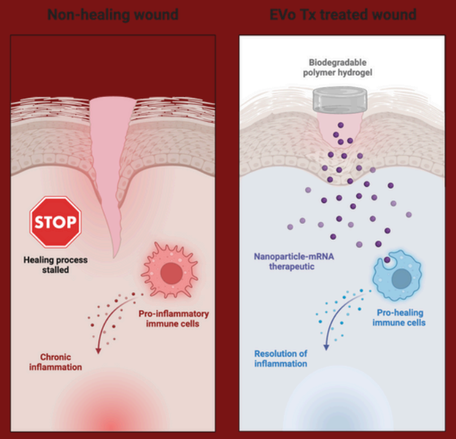
EVolution Therapeutics

Nanoparticle based Inflammation Resolving Therapy

Mission

To transform the treatment of a wide range of inflammatory diseases, through development of our nanoparticle-based therapeutics. Our lead target indication focuses on the treatment of non-healing wounds, specifically diabetic foot ulcers.



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."**

First-in-class therapeutic leveraging 20 years of UK government funded research. A disruptive approach with a **defined MOA**, which harnesses human biological pathways intrinsic to the resolution of inflammation. Combines a biodegradable polymer hydrogel for the controlled release of **mRNA-loaded nanoparticles**. In contrast to current treatments our therapy is **pro-resolving NOT anti-inflammatory**.

Investment Thesis

Impact:
Large unmet need in chronic wound care, first-in-class biologic with defined MOA and novel pro-resolving action, strong preclinical safety/efficacy validation, clear path to commercialisation and regulatory approval.

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.

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.

SPARK
THE MIDLANDS

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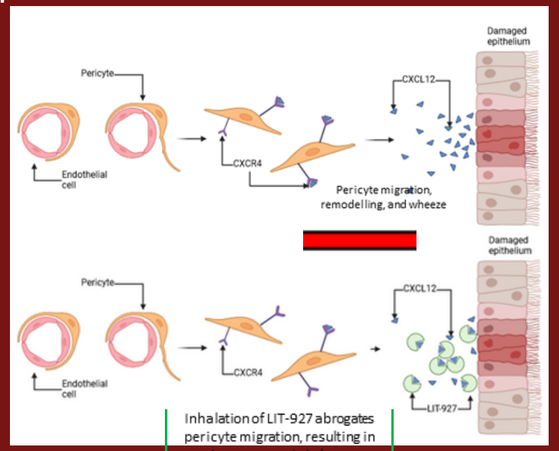
Fibraxis

Combating fibrosis in asthma by targeting chemotaxis

Mission

To develop a small molecule inhibitor that targets the structural changes that occur in the asthmatic lung and are directly responsible for wheeze.

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.



Product & Solution

Asthma care is currently in a state of crisis. It affects around 260 million people worldwide and currently costs the NHS around £1 billion annually.2 It is estimated that 450,000 deaths are caused by asthma each year, with up to 10% of asthmatics being insensitive to corticosteroids (the current standard of care).3

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).

We have shown efficacy in the gold standard preclinical model for allergic asthma and are keen to pursue Phase 1 clinical trials.

Investment Thesis

Impact:
We have focused on the optimization of a first-in-class small molecule inhibitor that interferes with cellular migration. This drug is delivered via inhalation and has been shown to abrogate structural changes and resolve the symptoms of asthma when delivered therapeutically.

Market Opportunity:
Global asthma therapeutics market estimated value of $25.7B in 2023 and growing to $37.8B by 2032.

Team Highlights:
CEO and CSO have worked together since 2018 and have been awarded a £25,000 grant to form the spin-out; CSO has 25 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.

SPARK
THE MIDLANDS

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Future proof therapies against resistant infections

First-in-class anti-virulence therapies against resistant respiratory infections

Mission

Arivin Therapeutics is tackling one of the most pressing healthcare challenges of our time: antimicrobial resistance.

Antibiotic resistance currently claims 1.27 million lives each year, a number expected to surge to 10 million annually by 2050. Developing innovative therapies in this field could save 11.1 million lives globally and avert €280 billion in additional healthcare costs by 2050. Our mission is to combat these resistant pathogens, focusing particularly on their most devastating effects, in recurrent chronic infections.

Product & Solution

At Arivin Therapeutics, we are developing Future-Proof small molecule therapies against bacterial infections.

They are Future-Proof because the therapies overcome the two huge problems thatall antibiotics face: 1) They avoid rapid bacterial resistance build-up, and 2) they are effective against already resistant (including fully or pan-drug resistant) isolates.
The therapy directly eradicates bacterial biofilms and simultaneously neutralizes specific bacterial toxins. The treatment significantly lowers the severity of infections and makes resistant pathogens more susceptible to antibiotics and our immune system.

Investment Thesis

Impact:
First-in-class therapies that evade existing bacterial resistance mechanisms.

Market Opportunity:
Combined peak market sales potential of $1 840 million (annually).
Primary markets are non-cystic fibrosis bronchiectasis and cystic fibrosis patients with recurrent infections. Secondary opportunity identified in open wound infections.

Team Highlights:
Strong founding team containing both entrepreneurship and industrial experience, including one of Finland's most experienced drug developers.

SPARK FINLAND

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GlobeVac

Thermostable vaccine and probiotics formulation

GLOBEVAC

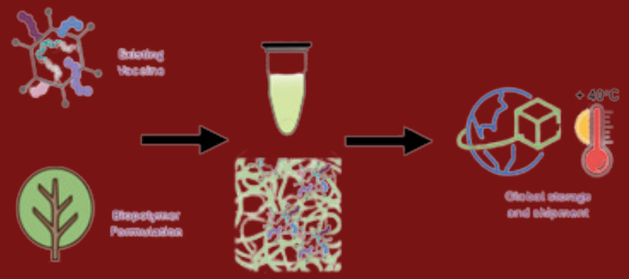
Mission

Formulating vaccines and probiotics for animal livestock farming and human health



Product & Solution

Sustainable natural biopolymer to microencapsulate microbes for live attenuated vaccine.Existing vaccines or vaccines or product in pipeline which undergo cold chain can be formulated and stored at room temperature for long term stability



Investment Thesis

Impact:

- GlobeVAC uses innovative food derived polymer that recudes costs of vaccine production 80%
- Sustainable green economy solution
- Adaptable tot vaccines and pro-biotics application

Market Opportunity:

- 80% of vaccnine cost are for storage and logistic and we are addressing to increase the margin of such expenses
- Intensive faming and livestock suffer of vaccines instability and huge loss happens when outbreaks happen

Team Highlights:

- Strong knowledge about vaccines formulation and scientific knowhow
- Previous spin off company and commercialisation experience and support
- Deep Scientific knowledge and strong high impact factor peer reviewed publications
- Secured IP

SPARK FINLAND

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Human embryonic stem cell system for small molecule testing for Alström syndrome

UNIVERSITY OF BIRMINGHAM

Mission

We are aiming to develop a human embryonic stem (hES) cell-based platform for small molecule testing for Alström Syndrome (AS).

Product & Solution

We are developing a hES cell based platform from which we can generate specialised cells- e.g. insulin producing cells, cardiomyocytes (heart cells), retinal cells, fat cells, etc- with gene alterations that mimic what happens in a rare genetic condition called AS.

AS affects patients from childhood. There is currently no cure; focus of treatment is on management. The generation of the hES cell based system will facilitate this in a cost effective way.

AS is also a good model for studying obesity and insulin resistance, which are very common conditions. Small molecules that work in AS may well work for these more common conditions as well.

Investment Thesis

Impact:
This is a novel approach for AS. The impact of effective small molecules would be significant for a patient cohort for which treatment options are limited and for which there has been limited attention/resources (due to the rarity of the condition). The small molecules that would work in AS could very well work in common obesity and insulin resistance as AS is an extreme model of these conditions.

Market Opportunity:
AS population and potentially other patients living with obesity and insulin resistance/diabetes.

Team Highlights:
We currently have a small team of a clinical expert in AS, an ES cell expert, and an obesity/type 2 diabetes expert. This is a good base to build on.

SPARK
THE MIDLANDS

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Kleis Therapeutics

Progressing novel Transglutaminase 2 inhibitors for a range of fibrotic conditions

KLEIS THERAPEUTICS

Mission

Fibrosis is a scarring process characterised by myofibroblast accumulation and excessive deposition of extracellular matrix (ECM) proteins, in particular collagen I and III. This can lead to loss of organ architecture and compliance, induction of pathological signalling in cardiomyocytes and eventual heart failure. The fibrotic process is similar in many organs, including lung, liver and kidneys, making it an attractive target for therapeutic intervention.

Idiopathic pulmonary fibrosis (IPF) is a progressive, irreversible, ultimately fatal lung disease with high morbidity. There are only two approved medicines for IPF: Pirfenidone and nintedanib and b oth are associated with tolerability issues, and risk of liver damage.

Product & Solution

Targeted therapy is complicated, as the fibrosis causing myofibroblasts can originate from multiple cell types including endothelial cells (ECs) (known as endothelial–mesenchymal transition, EndMT), pericytes, epithelial cells (epithelial–mesenchymal transition, EMT) and fibroblasts.

The transforming growth factor β (TGFβ) family of growth factors are pivotal in driving the transition of f ibroblasts, endothelial cells, pericytes and epithelial cells into active myofibroblast in response to fibrotic stimuli. The most documented member associated with fibrosis development is TGFβ1. Transglutaminase 2 (TG2) is a multi-functional Ca2+-dependent protein crosslinking enzyme, which is regulated by TGFβ1 and also involved in the activation of matrix-bound latent TGFβ.

We are currently testing our third generation of small molecule TG2 inhibitors to develop our lead compound to take to clinical trials.

Investment Thesis

Impact:
Therapeutic can be developed for other fibrotic disorders, including cancer as TG2 is involved in angiogenesis.

Market Opportunity:
The global IPF market is estimated to be worth $11.7bn by 2031.

Team Highlights:

- World-leading research team with over 40 years of research in the Transglutaminase field
- Four patents filed/granted on TG2 Small molecule inhibitors (SMIs)
- Over £5.8m in grants (undiluted funding) to date

SPARK
THE MIDLANDS

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MetaDisTreat

Small molecule PKD2 inhibitors as a treatment of metabolic diseases

Mission

- Hyperlipidemia is a major driver of atherosclerosis, leading to cardiovascular complications and high mortality rates worldwide
- Current therapies often fail in patients with comorbid conditions (obesity, type 2 diabetes), leaving a critical treatment gap
- We aim to develop a novel small molecule that lowers blood cholesterol and triacylglycerols, while improving glucose control that could be used in the treatment of metabolic diseases

Product & Solution

- We showed that inhibition of protein kinase D2 (PKD2) leads to resistance to diet-induced obesity and type 2 diabetes, lowers triacylglycerol as well as cholesterol levels, and is sufficient to ameliorate atherosclerosis in mice
- Highly selective and effective small-molecule PKD2 inhibitor could address the unmet needs of patients with multiple metabolic risk factors
- Such strategy promise more effective prevention of atherosclerosis in high-risk patient groups

Investment Thesis

Impact:
Unlike standard therapies PKD2 inhibitors targets blood cholesterol and triglycerides level at the same time improving glucose homeostasis.

Market Opportunity:
Cardiovascular diseases remain a leading global cause of death, representing a multibillion-dollar market. Our approach addresses a key gap in hyperlipidemia treatmentfor comorbid populations.

Team Highlights:
Our project team includes experienced scientists with great expertise in metabolic research. In addition, the Nencki Institute has filed a patent application covering the therapeutic use of PKD2 inhibitors for metabolic diseases.

nencki institute of experimental biology

SPARK POLAND

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metaLead Therapeutics AG

Treating metal-related diseases. Effectively.

Mission

At metaLead, we are pioneering novel therapeutics for metal-related diseases, with a primary focus on Wilson disease. This rare genetic disorder causes toxic copper accumulation in the body, leading to severe liver and neurological damage. Our mission is to develop innovative, metal-binding peptide-based therapies that address significant unmet medical needs. Current treatments for Wilson disease have limitations, particularly for patients suffering from neurological symptoms, leaving a critical gap in care. Leveraging our expertise, we aim to transform patient outcomes by creating safe, effective, and scalable treatments.

Product & Solution

We have developed a class of innovative short peptides designed to tightly and selectively capture metal ions of interest. Aside of binding these metal ions, our peptides are chemically inert. Thanks to these features, we were able to show the outstanding capabilities of members of this family in reversing lead poisoning and treating Wilson disease in mouse models.
We aim to develop first and best in class drugs to such diseases and conditions that enable efficacious, safe and patient-friendly treatments.

Investment Thesis

Impact:
In Wilson disease, the SOCs are outdated and suffer from poor efficacy, limited safety, and harsh treatment regimens. metaLead's technology aims to enable a safe and efficacious treatment that enhances patient compliance.

Market Opportunity:
Although Wilson disease is considered a rare condition, about 270k people suffer from it globally. With only a 30% market share among symptomatic patients in the US, EU, and JP markets, metaLead will have $1.4 Mio revenues at top sales.

Team Highlights:
In addition to a team of professional medicinal inorganic chemists, our team is supported by experts in pre- and clinical drug development, BD, finance, and beyond.

SPARK ZÜRICH

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Microcomposite Microbiome Modulators

Precision Prebiotics - Restoring Beneficial Gut Bacteria

UNIVERSITY OF BIRMINGHAM

Mission

To develop next-generation precision prebiotics that selectively nourishes **beneficial gut bacteria**, transforming microbiome health into targeted, effective solutions for both **personalised** and **clinical** applications.

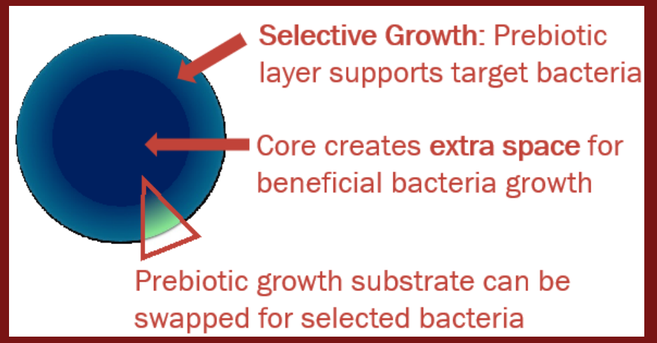
Need for Innovation

► Current prebiotics (often generic fibre-based supplements) **lack specificity**, limiting their effectiveness in restoring depleted bacterial communities.

► The gut microbiome is a stable ecosystem of bacteria which are resistant to change, **limiting space** and **nutrient availability**.

Product & Solution

MicroMods:
MicroMod technology delivers targeted, precision prebiotics that selectively support beneficial bacteria.



Product Development:
1) Disease - Specific MicroMods - targeting specific bacteria which are known to be depleted in disease.
2) Personalised MicroMods – tailored formulations to replenish specific depleted bacteria

Investment Thesis

Impact:
This is an entirely novel and multi-functional way of developing prebiotics.

Market Opportunity:
The prebiotic market alone is projected to exceed **$10 billion by 2030**, with expanding demand for precision solutions in **personalised nutrition, functional foods, and medical applications**.

Team Highlights:
Interdisciplinary team of microbiome researchers, biomaterials scientists, clinicians, leaders in human microbiome therapeutics and food scientists.

SPARK
THE MIDLANDS

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Mitochondrial-targeted therapies

Dual drug mitochondrial-targeted delivery for neuroblastoma

Aston University
BIRMINGHAM UK

Mission

To revolutionise mitochondrial medicine by developing cutting-edge, targeted liposomal technologies that combine precision therapy, diagnostics, and genome editing. Our mission is to provide innovative solutions for neuroblastoma, Alzheimer's disease, and other mitochondrial-related conditions, empowering patients with transformative treatments that heal, diagnose, and restore health at the cellular level.

Product & Solution

Our product is a novel nanoparticle-mediated drug delivery system encapsulating a chemotherapeutic and an antioxidant and deliver these directly to the mitochondria for the treatment of neuroblastoma, ensuring biocompatibility, and controlled drug release.

Our product treats neuroblastoma and minimises chemotherapeutic-induced cardiac damage (cardiotoxicity), a common challenge in paediatric cancer treatments.

Additionally, the slow-release mechanism of our nanoparticles ensures reduced exposure to the drugs, further mitigating potential side effects.

Investment Thesis

Impact:

- Specific targeting of cellular compartment (mitochondria) not available in existing therapies.
- Our dual action drugs offer reduction of chemotherapeutic-associated cardiotoxicity.
- Opportunity to address other mitochondrial-related conditions and encapsulate drugs of low solubility, diagnostics and genome editing tools.

Market Opportunity:

High-risk neuroblastoma have poor prognosis, with survival rates below 50%. Current management (chemotherapy, surgery, and immunotherapy) is complex and highly costly. Survivors often develop chronic health issues further straining the healthcare systems

Team Highlights:

•Group is pioneer in mitochondrial-targeted drug delivery systems
•Extensive expertise in antioxidant-based therapies in cardiovascular and brain-related disorders
•In vitro preliminary data
•In vivo efficacy model (future study)

SPARK
THE MIDLANDS

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MyNeuroCure

Novel Drug Therapy for Amyotrophic Lateral Sclerosis (ALS)

Mission

MyNeuroCure is committed to developing novel treatment solutions for neurological diseases, specializing in seeking breakthrough medical therapies for neurodegenerative diseases.

Product & Solution

Novel therapy to slow down ALS progression and enhance the quality of life of patients, also in the early stages of the disease.

Novel drug candidate that shows neurorestorative properties through a unique mode of action, crosses the blood brain barrier thus can be easily administered.

Investment Thesis

Impact:
There is no cure for ALS. Patients die 1-3 years after diagnosis. We have strong pre-clinical data showing efficacy in several ALS models.

Market Opportunity:
The economic burden of ALS is significant. Annual costs/patient €9,000 to €115,000, surpassing those for Parkinson's Disease and dementia.
TAM valued at 74.7 Billion USD in 2023 & is expected to grow to 114.6 Billion USD in 2032 with a CAGR of 4.7%.
We will **focus on ALS: SAM - valued at 662.3 Million USD in 2022** and expected grow towards €1.04 Billion USD by 2032 with a CAGR of 4.6%.

Team Highlights:
Top level academic researchers with over 40 years of experience working with these drug candidates

SPARK FINLAND

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Nanoparticles for penetration enhancement

Using hair follicles as a gateway for topically applied formulations

CHARITÉ
UNIVERSITÄTSMEDIZIN BERLIN

Mission

Our project focuses on using **nanoparticles in topically applied formulation**s to more effectively target hair follicles, thereby improving the overall performance of the dermatological treatment.

Our first area of application is in the development of a disinfectant to prevent **surgical-site infections (SSIs).**When preparing for long surgical procedures, bacteria residing inside hair follicles are not effectively reached by standard antiseptics, allowing the bacteria to recolonize the skin surface over time and potentially cause SSIs. In Germany alone, 800,000 people annually face infections severe enough to lead to prolonged hospital stays, multiple follow-up surgeries, or, in the worst cases, even death.

Product & Solution

Our solution generally consist of a topical formulation where a small percentage of specifically-engineered nanoparticles are suspended, and the active ingredient is simply dissolved.

The nanoparticles enhance the penetration of the formulation inside the hair follicles by onsetting a mechanical phenomenon called the “ratchet effect”, where the motion of the hair shaft by a massage directs the particles, together with the formulation, deeper into the hair follicles.

When applied to a skin disinfectant, this technology allows it to reach those previously untouched bacteria inside the hair follicles and kill them, significantly lowering the risk of SSIs.

Investment Thesis

Impact:
Our product has already proven to be a significant improvement of the standard of care:
+ 40 % higher penetration depth
+ 85 % higher follicular concentration
+ 130% higher bacteria reduction factor

Market Opportunity:
The global antiseptics market is projected to steadily increase and reach $63 billion by 2030, driven by aging populations and a growing need for effective solutions. Our product fills a critical gap by introducing follicular disinfection, potentially saving billions in aftercare costs while catering to a large target population of surgical patients worldwide.

Team Highlights:
20+ years of experience in hair follicle targeting, including using nanoparticles.

SPARK
BIH

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Next-generation allogeneic CAR T cells to treat B-cell mediated autoimmune disease

Gene editing platform for “off-the-shelf” CAR T cell manufacture

CHARITÉ
UNIVERSITÄTSMEDIZIN BERLIN

Mission

Current therapies for autoimmune diseases fail to provide long-term remission and cause side effects from long term systemic immunosuppression.

Chimeric Antigen Receptor (CAR) T cell represent a promising immunotherapy approach to target B cell mediated autoimmune diseases.

We aim to engineer T cells expressing the CAR without artificial promoters and semi-random transgene integration. Our targeted gene editing strategy simultaneously disrupts the T cell receptor (TCR), which prevents graft versus host disease and enables allogeneic application.

Product & Solution

A next-generation non-viral gene editing technology using a base editor system will be applied for CAR T cell approaches in autoimmune diseases.

Harnessing multiplex editing, the team aims to create a solution based on allogeneic donor cells to reduce costs and improve access.

This approach shifts from viral to non-viral editing and from random to precise integration.

Impact:

- Less side effects
- Streamlined manufacture compared to autologous CAR T cells -> reduced costs

Investment Thesis

Market Opportunity:
For rare autoimmune disease (orphan drug designation):

Estimation:
100,000 patients
25% of patients eligible for treatment
100% expected market penetration
X 50,000 Eur: Cost of treatment
~1.25B Euro Projected Revenues

Team Highlights:
Clinical and scientific expertise with several patents for gene-editing technologies.

SPARK
BIH

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New old antioxidant

Small molecule drug for neurodegenerative and oxidative disorders

Leibniz Institute on Aging – Fritz Lipmann Institute

Mission

Excessive oxidative stress leading to mitochondrial dysfunction is widely accepted cause of orphan disorders (e.g. Friedich's ataxia) as well as wide spread diseases (Parkinson's, diabetes type 2). Current treatment options often have limited efficacy, toxicity, and present opportunities for improvement.

Product & Solution

I discovered antioxidant in a drug candidate named HSI. HSI is known to have optimal bioavailability, pharmacokinetic properties and is safe in patients, however it didn't reach FDA-approval status.
HSI activates several antioxidant enzymes, protects mitochondria from depolarization and cells from oxidative stress-induced death.

Investment Thesis

Impact:
HSI protects cells from oxidative stress considerably better compared to omaveloxolone approved for Friedrich's ataxia and idebenone approved for Leber hereditary optic neuropathy (LHON). HSI is also less toxic compared to competitors and have different mechanism of action.

Market Opportunity:
FtO analysis shows that HSI can be patented for a number of orphan indications including Friedrich's ataxia and LHON and also has potential for some prevalent diseases

SPARKFLI

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Novel targets for attenuating disease progression in Parkinson's disease

Small molecule therapy for Parkinson's disease

UNIVERSITY OF OSLO

Mission

Our product addresses a critical unmet clinical need in Parkinson's disease (PD) treatment. While current therapies focus on managing symptoms, they do not slow or stop disease progression.
Growing evidence links **DNA damage and impaired repair mechanisms** to neurodegeneration in PD, yet this remains an underexplored therapeutic target.
We are developing a **novel approach that targets DNA repair pathways** to protect neurons, enhance cell survival, and ultimately **slow the progression of PD.** By addressing the root cause of neuronal damage, our solution goes beyond symptom management, offering a **disease-modifying treatment** that has the potential to transform PD care.

Product & Solution

Our product is going to be a **first-in-class small molecule inhibitor** targeting a **novel DNA repair protein** that was previously unknown to play a role in Parkinson's disease (PD). This protein is implicated in the accumulation of DNA damage, a key driver of neurodegeneration in PD.
By selectively inhibiting this target, our molecule is expected to **reduce excessive or dysregulated DNA repair activity**, preventing neuronal stress and cell death. This approach aims to provide a **neuroprotective, disease-modifying therapy**, with the potential to **slow disease progression** rather than just managing symptoms.

Investment Thesis

Impact:
Our approach is **completely novel** compared to the current **gold standard treatments for Parkinson's disease (PD)**, which primarily focus on **dopaminergic symptom management** rather than targeting the underlying disease mechanisms.

Market Opportunity:
Over **10 million people** worldwide have Parkinson's disease (PD), with cases expected to **double by 2040**.
PD healthcare costs exceed $50 billion annually, with rising hospitalizations and long-term care needs.

Team Highlights:
Breakthrough Science – First-in-class approach targeting **a novel mechanism**
Expert Team – Strong background in **neurodegeneration, drug discovery, and translational research**.
Huge Market Potential – Multi-billion-dollar opportunity with **high unmet need** and **no direct competitors yet**.

SPARK NORWAY

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Novel vaccine platform for animal health

Utilisation of bacterial vesicles as vaccines in livestock

UNIVERSITY OF OSLO

Mission

One of the main challenges for the future is to feed the rapidly expanding human population. A current response to increasing food demand is to intensify the food production of livestock. The gatherings of many individuals in an enclosed area readily cause increased incidences of microbial infections leading to an overuse of antibiotics with the risk of antimicrobial resistance. Vaccination is one control methods to reduce the use of antimicrobials and thereby achieving a more sustainable food production industry
There is a lack of vaccines against intracellular bacteria and our project aims to develop strategies for vaccination of livestock, both terrestrial and fish, against such disease-causing agents.

Product & Solution

- In our project we are utilizing bacterial extracellular vesicles (OMVs) which are membranous nanoparticles that are secreted by bacteria.
- Research has shown that OMV based vaccines can be a successful tool against intracellular bacteria compared to traditional vaccines.
- OMV vaccines can be engineered to present specific antigens of disease-causing bacteria and possess intrinsic adjuvant activity.
- We are developing a novel method for a more efficient production of OMVs based vaccine technology that will enable high yields and low-cost vaccine manufacturing against infectious bacteria that plague the livestock and aquaculture sector.

Investment Thesis

Impact:
The OMV vaccine technology elicit a protective immunity against intracellular pathogens. This is lacking in the current marked. The technology is already in use in human medicine

Market Opportunity:
There is an ample opportunity for the product within animal health. E.g. annually, more than 450 million fish are released into aquaculture enclosures in Norway alone. Around 15% of fish die before they reach the market. The product will improve animal health for a more sustainable livestock industry economically and environmentally.

Team Highlights:
OMV vaccines has shown efficacy. This project will expand its utilization. The timeline is short from R&D to market within animal health.

SPARK NORWAY

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NovInCell Therapeutics

Small molecule therapy for ischemic stroke

Mission

To develop innovative therapeutic solutions, based on PI3-kinase class 2 inhibitor, to address critical medical needs in Acute Ischemic Stroke (AIS) treatment by enhancing vascular integrity.

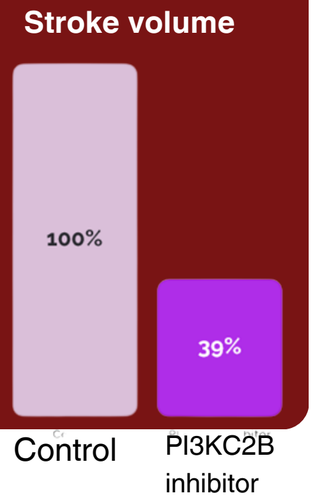
Our aim is to pioneer a new approach where stroke patients can benefit from early intervention, even at the pre-hospital stage, while expanding therapeutic applications to other conditions such as allergic disease, insulin resistance, oncology, and thrombosis.

Through cutting-edge research, strategic partnerships, and patient-focused innovation, we strive to improve lives and advance the future of healthcare.

Product & Solution

Our startup has developed a FiC, drug targeting vascular integrity and stability. This approach enhances the resilience of the vascular system, mitigating the effects of AIS. The drug is a PI3KC2B inhibitor with a unique MoA, offering early and effective stroke intervention.

We have demonstrated PoC data showing over 60% protection of brain tissue in a mouse model of stroke



Investment Thesis

Impact:
Our innovative therapy addresses a critical unmet need by improving both safety and efficacy over current treatments. It enhances vascular integrity, reduces stroke volume, provides over 60% brain protection in preclinical models, and improves patient outcomes, with potential expansion into other therapeutic areas.

Market Opportunity:
The acute ischemic stroke market represents a $13 billion annual opportunity in the seven major markets, with no competitors targeting vascular integrity, positioning our solution for strong market differentiation and growth

Team Highlights:
Experts in stroke research, molecular pharmacology, medicinal chemistry and business.

SPARK
BIH

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OptiSTROKE

Innovative CFTR modulator formulation for stroke prevention

CHARITÉ
UNIVERSITÄTSMEDIZIN BERLIN

Mission

To redefine **secondary stroke prevention** by leveraging innovative **cystic fibrosis conductance transmembrane regulator (CFTR)** modulator technology, traditionally used in the treatment of cystic fibrosis (CF), to address the critical limitations of existing antiplatelet therapies. With its **superior bleeding safety compared to e.g. aspirin** and its ability to deliver consistent efficacy, our investigational medicinal product aims to set a new standard in secondary stroke prevention and transform care for millions of patients worldwide.

Product & Solution

We are pioneering a unique CFTR modulator-based antiplatelet therapy in a formulation specifically designed to meet the needs of stroke patients. This advanced therapy has shown remarkable efficacy, significantly reducing the risk of stroke in CF patients, reducing platelet aggregation in blood of healthy donors ex vivo, and achieving safer, physiologic bleeding times compared to aspirin.

Our innovative solution promises to be **a new standard of care for secondary stroke prevention**, with potential applications in other thromboembolic diseases.

Investment Thesis

Impact:
Patients will have access to **a safer alternative to aspirin** in secondary stroke prevention without sacrificing efficacy. While minimizing the risk of bleeding, thereby reducing hospitalizations and long-term healthcare costs associated with stroke, which are estimated to be $861 billion worldwide (2017).

Market Opportunity:
Our target market in Europe, the U.S., and Japan represents 1.1 million people and an annual market volume of €592 million by 2030.

Team Highlights:
Our team of experts in cardiovascular disease and drug design leverages the well-established regulatory and manufacturing pathways of CFTR modulators, ensuring a faster route to market for a therapy with global applicability.

SPARK
BIH

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OxyMind

Oxytocin-augmented group psychotherapy for patients with schizophrenia spectrum disorders

CHARITÉ
UNIVERSITÄTSMEDIZIN BERLIN

Mission

Our mission is to develop a treatment that effectively address the negative symptoms of schizophrenia spectrum disorder (SSD), including reduced emotional expression and social withdrawal, which remain a significant challenge. By addressing these symptoms, we aim to enhance existing therapies and improve patients' quality of life.

Product & Solution

Our solution is OXYMIND, an innovative combination therapy composed of a tailored Mindfulness Based Group Therapy and the administration of oxytocin, leading to the improvement of the overall well-being and quality of life of patients with SSD.

In our approach, we leverage the social salience hypothesis which proposes that the effect of oxytocin as social hormone is depending on a positive social context. Our solution integrates feedback from patients and caregivers, as well as genetical information from the patients.

Investment Thesis

Impact:
Effective therapies for the negative symptoms of schizophrenia spectrum disorder (SSD) are still lacking.

Treating these symptoms effectively will lead to better outcomes for the patients as well as reduced costs for the healthcare system.

Market Opportunity:
24 Million patients worldwide.

Team Highlights:
Experienced psychiatrists and psychotherapists.

SPARK
BIH

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Project ‘CARE’

New small molecule therapy for depression

FRIEDRICH-SCHILLER-UNIVERSITÄT JENA

Mission

Current antidepressants are slow to work, often ineffective and associated with a battery of adverse effects. Hence, there is an unmet need for better, faster acting antidepressants.

Product & Solution

We identified a previously unknown molecular pathway, which is implicated in depression and does not involve classic antidepressant targets.

Our small molecule selectively targets this pathway, is very well tolerated, non-toxic, selective, fast-acting and bioavailable across the blood-brain barrier. We patented its’ application for mood disorders and Parkinson’s disease.

We are developing derivatives of this molecule for a composition-of-matter patent and to further boost medchem-properties of our compound.

Investment Thesis

Impact:
1 in 7 people suffer from depression during their lives. More than 50 % of antidepressant users are unhappy with their treatment.

Market Opportunity:
280 million people are depressed worldwide, leading to estimated costs of 16 trillion USD per year by 2030.

Team Highlights:
Open-minded, committed PI with long experience in translational depression research and large international network. Group leader experience. Successful acquisition of competitive funding, patents, high IF-publications.

SPARKFLI

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Small-molecule TREM2-compounds for the treatment of Alzheimer's disease

UNIVERSITY OF OSLO

Mission

A new drug for Alzheimer's disease. Today, there are few therapeutic alternatives. The effectiveness of existing cholinergic drugs is very limited.

Product & Solution

A compound that binds to and activates the TREM2-receptor, and reverses Aβ-induced inflammation. The compound will be administrated orally.

Investment Thesis

Impact:
The drug will target local inflammation in the brain, which is a new therapeutic approach.

Market Opportunity:
The global market for Alzheimer's therapeutics is USD 4 billion. It is expected to double over the next 10 years. The cost of dementia care is estimated by the WHO to be more than USD 1 trillion worldwide.

Team Highlights:
Complementary skills in pharmacology and medicinal chemistry. Strong research background in the field. The commercial development is supported by Inven2, the TTO of UiO and Oslo University Hospital.

SPARK NORWAY

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REACT

RFX7-Enable Adaptive Cancer Treatment

Mission

Our project aims to establish a novel treatment for **non-Hodgkin B-cell lymphomas by activating** the tumor suppressor protein **RFX7**.

Non-Hodgkin B-cell lymphoma has a 5-year survival rate of approximately 70-75% in Germany. However, the current gold-standard treatment, chemotherapy, is associated with substantial side effects that can significantly impact patients' quality of life. Despite advances, many patients face relapse or treatment resistance, highlighting an urgent need for more effective and tolerable therapies.

Product & Solution

RFX7, a recently recognized tumor suppressor, emerged from studies of Burkitt's lymphoma. RFX7's tumor-suppressive role was confirmed in a B-cell lymphoma-prone mouse model. We found that RFX7 can be activated by the well-established tumor suppressor p53 and regulates a network of tumor suppressor genes, correlating strongly with patient survival across various cancers. RFX7 appears inactive in many cancers without mutations, possibly due to phosphorylation. Most recently, we have identified **kinase inhibitors that** can **activate RFX7** independently of p53.

Investment Thesis

Impact:
Compared to gold-standard chemotherapy, our approach holds promise in non-Hodgkin B-cell lymphomas, particularly as it may sensitize p53-mutant cancers, which are typically more resistant to chemotherapy

Market Opportunity:
~15,000 patients diagnosed each year in Germany.

Team Highlights:
Excellent knowledge in biochemistry and molecular biology, strong expertise in computational biology, critical knowledge of transcription factor function and regulation.

SPARKFLI

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smartRNA

A novel protein upregulation platform

Mission

Revolutionizing rare disease treatment by restoring protein levels in patients with haploinsufficiencies – monogenetic disorders with significant unmet medical need caused by partial gene loss resulting in decreased protein levels.

Product & Solution

Our proprietary, mutation-independent smartRNA platform stabilizes mRNA using a universal mechanism applicable to all mRNAs across all cell types, to restore protein levels. This scalable, oligonucleotide-based technology enables rapid expansion across multiple haploinsufficiency disorders and patient populations.

Investment Thesis

Impact:
Current treatments are either mutation-specific, targeting only subpopulations of patients, or gene-specific, with limited applicability to other genes. Our approach overcomes these limitations.

Market Opportunity:
The rare disease market is rapidly growing, valued at ~$150 billion in 2023, with expectations to exceed $300 billion by 2030.

Team Highlights:
Our team brings together decades of experience from the established biotech industry, biotech startups, oligonucleotide therapeutics, and vaccine development, along with deep expertise in RNA biology.

SPARK DENMARK

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StemSight

Off-the-shelf stem cell therapy for corneal blindness

StemSight vision unlimited

Mission

Corneal blindness is a major unmet medical need causing a substantial economic and social burden and with a high value for curative therapies.
Globally, 12.7 million patients are currently waiting for corneal transplants. Additionally, there are specific forms of corneal blindness which cannot be treated with existing methods.
That is why we focus first on limbal stem cell deficiency (LSCD), a rare form of corneal blindness, affecting especially young and working-aged people. LSCD affects about 3 / 100,000 people both in EU + US, with an annual incidence of severe LSCD is about 0.06 / 100 000. Of these patients, 57% suffer from bilateral LSCD, equating to 36,000 treatable eyes in EU + US.

Product & Solution

Our first product, STE-101, is targeted for LSCD, for which induced pluripotent stem cell (iPSC) - derived therapeutic Limbal stem cells will be transplanted to restore the natural stem cell dependent renewal capacity of the corneal epithelium in a single operation.
We aim to develop further pipeline products for the treatment of different forms of corneal blindness, such as iPSC-derived corneal endothelial cells (CEnC) (STE-201), and later we will explore also other suitable technologies arising in this space.
The starting material iPS cells have been gene-edited to render them “invisible” to the patient’s immune system, thereby avoiding the need to match donor and recipient.

Investment Thesis

Impact:
There are currently no competing products on the market for curing bilateral LSCD, and we offer an attractive alternative also to unilateral patients, as STE-101 doesn’t risk their remaining healthy eye.

Market Opportunity:
Our target market is the 36,000 eyes affected by severe LSCD in EU + US. The end user pricing estimate for reimbursement is €250k/eye in Europe and €580k/eye in the USA, bringing total addressable market to $14 b.

Team Highlights:
The founding team are all top-tier scientists in ocular stem cells. Management team includes also Chief Commercial Officer Dr Ross Macdonald (ex-CEO of Cynata Therapeutics) and Chief Development Officer Andrew Willis (IO Biotech, LIFT Biosciences).
Current investment from VCs, family office and angel investors.

SPARK FINLAND

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Teneura Therapeutics

T cell therapies for neurological autoimmune diseases

Mission

Cure of neurological antibody-mediated diseases by targeted T cell therapies.

Product & Solution

We develop engineered T cells and T cell engager to specifically eradicate disease-causing B cells in neurological antibody-mediated diseases. Due to this targeted approach, we aim to circumvent the problem of immunosuppression, that might lead to life-threatening complications. By leveraging T cells capability to migrate to tissues such as the CNS and their high cytotoxic potential, we expect to yield unprecedented therapeutic responses.

Investment Thesis

Impact:
In contrast to existing treatments or drugs under clinical investigation, we specifically target the root-cause of the disease.

Market Opportunity:
Due to our plug-and-play technology we can address the whole market of antibody-mediated disorders.

Team Highlights:
We are a team of neurologists and clinician scientists with strong focus on T cell therapies and neurological autoimmune diseases. The KOL Prof. Harald Prüß and Prof. Andreas Meisel support Teneura Therapeutics as scientific advisors.

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MEDICAL DEVICES

Aortic Phlex

External ring for aortic valve repair

Mission

2.5 million patients in the US and Europe suffer from aortic regurgitation, a condition where the aortic valve allows blood to leak back into the heart. In recent years, valve repair has gained prominence as a favorable treatment over valve replacement. An annuloplasty ring positioned at the aorticvalve has emerged as a critical procedure for helping these patients receive better with less complications.

Product & Solution

Our team has successfully designed and characterized an innovative aortic annuloplasty ring that addresses these limitations. This novel ring is expansible, open, and allowing it to replicate the natural movements and while providing essential support. Constructed with a silicone core and covered with a polymer fabric, our aortic annuloplasty ring has been carefully evaluated for geometric and dynamic changes in vivo. Our findings demonstrate that this ring closely resembles the characteristics of a natural heart valve.

Investment Thesis

Impact:
Aortic annuloplasty rings couldbe an alternative to valve replacement. These rings offer a way to preserve the native valve, reducing the need for anticoagulation therapy and avoiding complications associated with prosthetic valves.

Market Opportunity:
Severe aortic regurgitation affects approximately 0.5–1% of the global population, translating to 20–40 million individuals worldwide.

Team Highlights:
We have a diversified skill-set within our team, which consists of biomedical engineers as well as cardiac surgeons, one of who has developed several new surgical devices for heart valve patients and has extensive commercial knowledge.

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Aston Vision Sciences

Customer driven medical devices that will save millions of people from the burden of preventable blindness

Mission

Over a thousand people start to lose their sight in the UK each month and it many of us may personally know someone who is going through this. In countries around the world where resources are limited, numbers of people experiencing such personal tragedies are far greater (at least 2.2 billion globally)-with nowhere to turn to find help in times of decline and no support to be provided once blind. Many eye conditions are treatable but only if problems are identified and addressed early- something that is still lacking today.

At Aston Vision Sciences, we aim to:

- Deliver customer driven sophisticated devices that will outperform competitor offerings and provide fast, portable testing capabilities in a variety of environments.
- Grow eyecare market by increasing patient reach to enable early medical intervention for the millions of people beyond the reach of today's solutions.
- Reduce climate impact of delivering ophthalmology services and bring the clinic to the patient through patented, multifunction devices.

Product & Solution

With an increasing and ageing population, existing devices cannot keep up with the growing numbers and changing needs of the population.

We currently have 2 portable, handheld tools in the market that are an improvement and more efficient than their competition, and we are developing a multifunction, portable solution for early eye disease detection and patient triage. I will offer significant costs savings to care providers and greater patient access that are currently beyond the reach of conventional solutions.

Our Mobile Eye Examiner (MOBEE) will combine the functionality of several large, clinic-based devices into a small handheld solution which enables substantial environmental and social economic benefits through efficient provision of early care to patients.

Investment Thesis

Impact:

As the world's population continues to grow and age, efficient modes of reaching billions of patients struggling with eye health and mobility issues needs to be addressed to reduce and prevent people from missing urgently needed help. This is just as true in a developed nation such at the UK and an underdeveloped region such as sub- Saharan Africa

Market Opportunity:

Human total addressable market: $4.79billion
We are also moving into the veterinary space where the Veterinary total addressable market is $2.61billion

Team Highlights:

We are a multi-disciplinary team which include medical device developer veterans and practising clinicians. We have achieved ISO 13485 and have 2 class I medical devices on the market.

SPARK
THE MIDLANDS

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CHAT2MA

The Congenital Heart Assessment Tool Mobile Application

BIRMINGHAM CITY University

UNIVERSITY of WORCESTER

Mission

Congenital Heart Disease (CHD) occurs in 60.9 of every 10,000 births.

Approx. 1/3 of these infants are born with complex CHD which requires urgent life-saving surgery.

These infants are typically discharged after their first surgery with a home monitoring programme.

This is an incredibly fraught and difficult time for parents.

Our mission is to improve this experience for parents, healthcare professionals and to improve outcomes for infants.

Product & Solution

The CHAT2MA application supports parental decision making for the care of infants once discharged home.

CHAT2MA aims to:

- Support parents in making appropriate decision about the care of their infant.
- Improve the quality and reliability of data captured at home resulting in better outcomes for infants.
- Streamline communication between parents and healthcare professionals.

Investment Thesis

Impact:
CHAT2MA is a significant evolution of the existing Congenital Heart Assessment Tool (CHATv2) which is the current gold standard for parental decision support for parents of infants with CHD in the UK.

Market Opportunity:
The CHAT2MA application provides a unique opportunity to improve the outcomes and experience for families of infants with CHD.

Team Highlights:
The cross-disciplinary team behind CHAT2MA have worked with parents and healthcare providers alongside Birmingham Women and Children's Hospital, Great Ormand Street Hospital for Children and Little Hearts Matter. Building on their existing expertise gained in the creation of CHAT they have created a dedicated technical solution that meets the clinical need of CHD care head-on.

SPARK
THE MIDLANDS

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Clouz OneKnot

Closure solutions for minimal access surgery

CLOUZ

Mission

Making minimally-invasive closure **easy, fast and consistently secure**.

Existing methods applied in minimal access surgery are either costly, have limited application, are technically challenging, time-consuming and vary in consistency (safety).

Clouz addresses all of these with **a cost-effective solution that can be used in clinics anywhere in the world.**

Product & Solution

Clouz OneKnot makes **minimally-invasive suturing easy and consistently reliabl**e.

Efficient and cost effective. With pre-tied, locking knots, internal suturing is executed securely, ensuring high quality, strong fixations every time.

OneKnot improves surgeon workflows and optimizes patient outcomes.

Our products are built on **patented technology** and developed with minimally-invasive specialists at Charité-Berlin University Hospital.

Investment Thesis

Impact:
Clouz addresses a medical need with cost-effective, sustainable solutions that can be efficiently distributed globally today and in emergent high-value robotics/ laparoscopic device markets.

Market Opportunity:
Growing global surgical market due to growth in elderly population; increasing demand for minimally-invasive care inc. emerging healthcare markets. Shortage of surgical specialists driving demand for solutions that enable medical personnel and minimally-invasive care.

Team Highlights:
A cross-functional founder team with experience across surgery, medical technology development and startup development.

SPARK
BIH

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Cornea Sense

Diagnostic ophthalmic device for Dry Eye Disease

Mission

Dry eye disease (DED) severely affects over 350 million people globally, with significant implications for patient quality of life and healthcare costs and nearly 1 in 3 people globally experience symptoms of DED. However, DED diagnostic landscape is fragmented and often relies on multiple invasive, subjective, and time-consuming tests, which can be cumbersome for both patients and healthcare providers.

With the rising prevalence of DES, there is an urgent need for non-invasive, cost-effective tools that can simplify diagnosis, reduce patient discomfort, and provide reliable, objective, and standardised measurements.

Product & Solution

The Cornea Sense solution utilises patented terahertz technology for non-invasive, non-ionising corneal hydration measurement, seamlessly integrating with OCT devices. By offering precise and rapid diagnostics, it addresses the challenges of DED detection and monitoring, enabling earlier intervention, improving patient outcomes, and reducing costs.

Investment Thesis

Impact:
While the method of measuring ocular surface hydration is novel, it allows for non-invasive, rapid, specific and direct DED diagnostics, thus complementing or even replacing existing diagnostic methods.

Market Opportunity:
The DED diagnostic market spans public healthcare, private clinics, and optometrists in the U.S. and Europe. It includes over 350M global DED sufferers, and hundreds of millions undiagnosed people, driving a $80B+ market opportunity.

Team Highlights:
Cornea Sense team is compromised of technology, industry, medical and business professionals, who are ready to take this challenge and improve DED diagnostics globally.

SPARK FINLAND

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EpiHeart

Enabling cardiac cell therapy in surgery

Mission

EpiHeart aims to enable administration of autologous regenerative cardiac cell therapy *“Cardiac Micrograft Therapy”* in high percentage of cardiac surgeries.

We believe that cardiac cell therapy offers unique benefits for the patient over and in combination with small molecules, revascularization, ventricular assist devices and heart transplantations.

We believe that autologous approach based on micrografts is cost-efficient, effective and clinically viable while further on the road it can be administered as a stand-alone therapy in less-invasive fashion.

Product & Solution

EpiHeart is positioned as a solution provider for Cardiac Micrograft Therapy.
Our offering consists of proprietary & CE marked operating room devices (Cooling plate, Operating Room Centrifuge) and a procedure pack containing four proprietary CE-marked single-use devices. In addition, we recommend certain 3rd party devices (e.g. cardiac patches, centrifugation tube, micrografting device) and we provide comprehensive instructions and training. The current solution is in clinical study use. We are expanding our own product portfolio with one strategic product.

See a case video here.

Investment Thesis

Impact:
New therapy that will add value to current cardiac surgeries. Clinical impact is promising and currently being studied in a clinical efficacy study.

Market Opportunity:
Addressable global market with healthy margins and high number of cases: ~200 000 relevant surgeries in Europe pa. with 4k€ revenue per surgery.

Demonstrating the efficacy is the current task in hand.

Team Highlights:
Small experienced team with broad skill set.

SPARK FINLAND

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GrOwnValve GmbH

First patient-specific living heart valve replacement

Mission

There is currently no heart valve with a long service life.

All heart valves currently available on the market have substantial deficits: they degrade over a median period of 10 years.

A new heart valve replacement becomes necessary, often by means of open heart surgery. In younger patients, this means that they need an average of 5 heart operations in their lifetime.

Each heart operation is associated with high costs (several tens of thousands of euros) and an enormous burden for patients and their families.

We have developed the first heart valve that lasts a lifetime.

Product & Solution

The GrOwnValve is custom-made based on the patient's image data.

From this we 3D print a patient-specific heart valve mould, harvest the patient's own tissue in the operating theatre, place it over the heart valve mould and sew the resulting heart valve into a stent. This living prosthesis is inserted into the beating heart using a minimally invasive catheter. The entire procedure takes 2 hours and takes place in the operating theatre.
After two days, the patient goes home with their own heart valve. The living tissue adapts to the physiological conditions in the circulatory system and is therefore long-lasting.

We are currently conducting a feasibility and safety study on patients.

Investment Thesis

Impact:
With the GrOwnValve the 4th generation of heart valves is now launched on the market: customized, endogenous and living.
This heralds a paradigm shift towards personalised medicine in this market segment and replaces the old gold standard of animal heart valves.

Market Opportunity:
The GrOwnValve is the first heart valve that is suitable for children and adults. The treatment of children opens up a new blue ocean market. Switching to the GrOwnValve could save 16 billion euros a year in the EU alone.

Team Highlights:
Our international multi-disciplinary team is led by experienced managers who all have more than 20 years of experience in the development of heart valves through to a successful exit.

SPARK
BIH

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Inga Health

Data-driven monitoring platform for safer labour induction

Mission

Making labor induction safer, more accessible, and data-driven.

Labor induction is challenging for over 10 million U.S. women in rural areas with limited access to obstetric care. Factors like obesity, ethnicity, and suboptimal induction management increase risks, affecting especially women of color and underserved communities.

There is a critical need for advanced, quantitative monitoring devices that can be used in outpatient settings to enhance access and improve labor and delivery outcomes for these populations and save healthcare costs.

Product & Solution

Our solution is a Foley catheter and sensor system fusion which provides real-time maternal-fetal biosignals from the uterus to increase safety, give objective and data-driven information for the healthcare and patient during labor induction, and save costs.

Investment Thesis

Impact:
Our approach addresses the challenges of traditional CTG devices with obese women. Our solution, maternal-fetal biosignals is directly measured from the uterus, offering a novel and more accurate method.

Market Opportunity:
In the UK and western countries, 1 in 3 births are induced. In the US, the induction rate is over 60%.

Team Highlights:
The project has secured over $4.5M in non-dilutive funding from Business Finland, the Jane and Aatos Erkko Foundation (Finland), and ARPA-H (U.S.)

With U.S. government funding, we are advancing to clinical trials in both Finland and the U.S., marking a significant milestone in validating our innovation.

SPARK FINLAND

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Koite Health Ltd (Lumoral)

A pioneer in light-enhanced antibacterial treatments

Mission

As a pioneer in light-enhanced antibacterial treatments, **Koite Health Ltd. is shaping the future of global health care.**

Koite's first product, **Lumoral®**, combines light-activated therapy with a specialized **Lumorinse®** mouth rinse to enhance oral health and combat common conditions like tooth decay and gum disease caused by oral bacteria.

By reducing reliance on antimicrobial medications, **Lumoral supports oral health while helping combat the growing threat of antimicrobial resistance (AMR).**

Building on its groundbreaking light-activated antibacterial technology, **Koite aims to extend its impact beyond oral care. Future innovations hold promise for diverse medical applications, including oral mucositis management and wound healing.**

Product & Solution

Koite's patented technologies offer diverse opportunities across multiple business sectors:

Oral care:

- **Antibacterial and biofilm treatments in oral care:** Lumoral & Lumorinse
- **Management of cancer treatment-associated oral mucositis:** Oncolum, our first product in this category

Local tissue treatment: We aim to form partnerships with key pharma players to create more effective treatment solutions

Investment Thesis

Impact:
95% of oral diseases are caused by harmful bacteria in the dental plaque. Daily brushing and flossing only remove about 50-60% of dental plaque making oral diseases extremely common.
Lumoral Solution highlights:

- Lumoral® kills 99.99% of the harmful bacteria in the dental plaque
- Clinically proven technology
- Scalable business model with over 40 000 users and 1M treatments given
- Continuous reoccurring revenue

Market Opportunity:
lTotal annual cost of bacteria-related dental diseases is estimated to be **€640 billion**, of which **€341 billion** are direct care-related costs and **€299 billion** indirect costs (productivity losses).

Team Highlights:
Experienced management team with expertise in world-class technical innovations, scaling up international medical technology companies and leading product design & clinical testing of medical innovations.

SPARK FINLAND

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MoniCardi

Monitoring of Cardiac Health Made Simple

MoniCardi

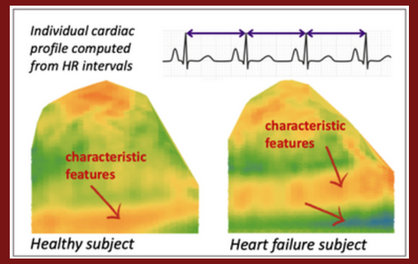
Mission

- Cardiovascular disease is the world's #1 killer with 32% of all deaths. Projected global costs reach $1 trillion by 2030.
- Current heart-rate (HR) wearables fall short in clinically-relevant insights for early intervention.
- MoniCardi's provides detailed insights into heart conditions with clinical accuracy, while leveraging wearable tools.

Product & Solution

MoniCardi's ECG and HR analysis software enables:

- Cardiac risk assessment, incl. sudden cardiac death, with 30-second HR measurement
- Accurate detection of heart diseases such as heart failure
- Determination of aerobic and anaerobic thresholds in sports



- MoniCardi software works in all HR devices (ECG, watches, rings, clothing) and can be implemented in the chip level.

Investment Thesis

Impact:

•Strong R&D basis at Tampere University: 1.5 MEUR of public funding; two patents & scientific validation in 20+ publications

•Customer validation through Suunto & Cardiolex partnerships. ZoneSense in Suunto devices features MoniCardi technology.

SUUNTO

CARDIOLEX

Market Opportunity:

•Total Market: **$130B** In Cardiovascular Digital Health

•Obtainable Market **$1-10B**

Team Highlights:

Founded by 3 physicists with deep R&D expertise, supported by leading business and medical advisors.

SPARK FINLAND

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Mukava

Dry electrodes with superior performance and comfortability

Mission

Measurements of biopotential signals such as ECG, EMG, and EOG are not trouble-free leading to number of **misdiagnosis** and **unnecessary** or **wrong treatments**. Issues originates mainly from the hydrogel electrodes used in the measurements. In addition, hydrogel electrodes are uncomfortable to wear, and they cause skin irritation and allergic reactions to large percentage of users. These issues have created a bottleneck in cardiac monitoring market.

Mukava has developed disruptive dry electrode technology which tackles the issues of hydrogel electrodes and enables the forecasted strong growth potential of the wellness and medical industry.

Product & Solution

Mukava's IP protected dry electrode technology solves the problems of **poor signal quality, unreliability and skin irritation**.

Mukava electrodes obtains outstanding signal quality from the very beginning of the measurement unlike competing technologies. The advantage stay prominent even throughout prolonged the measurements.

Breathable structure merged with other IP protected innovations minimizes the skin irritation while ensuring firm skin attachment.

Investment Thesis

Impact:
Mukava has developed dry electrode technology which tackles the issues of hydrogel electrodes and enables the forecasted strong growth potential of the wellness and medical industry.

Market Opportunity:
Mukava electrodes enables disruption of preventive healthcare and remote monitoring leading to massive reduction in global healthcare economy.

Team Highlights:
Mukava founder team composes from PhDs and MBAs. Team have strong background in technology, business development, sales and marketing.

SPARK FINLAND

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NANOSIOL

MUNI MED Masaryk University Faculty of Medicine

A nanopatterned surface on an artificial intraocular lens in prevention of secondary cataract

Mission

There is no solution on the market that completely prevents secondary cataract development. The incidence of secondary cataracts in the literature ranges from 10% to 50% within 3 to 5 years after primary cataract surgery. Currently, treatment of secondary cataracts is mainly performed by Nd:YAG laser capsulotomy, however, this can lead to complications such as retinal detachment, secondary glaucoma, macular edema and damage or dislocation of the intraocular lens (IOL). Most available IOLs do not provide surface treatment to prevent secondary cataracts. Only products from Alcon, have addressed this problem in the past with a sharp edge that prevented posterior lens cells from reaching the lens surface, but the effectiveness was low. Therefore, we propose a new solution in the form of a treatment of the IOL surface that could prevent the epithelial cells from opacifying the posterior capsule of the natural lens.

Product & Solution

This is research on the nano-surface of the working material and IOLs of a potential company. Our research aims to design the optimal structure and size of the nanosurface, which will be continuously tested during the development phase. The number, shape and arrangement of nanostructures are fully adjustable and can be formed on the surface of the intraocular lens in several ways. The final product will be an IOL with a modified surface that, due to its unique properties, could be used to prevent secondary cataracts and avoid the complications that cause primary cataract surgery. This is a unique innovation of intraocular lens technology with great potential for application in ophthalmology and other branches of optics.

Investment Thesis

Impact:
The solution we are developing could become one of the best on the market due to its easy portability for all those involved in IOL production.

Market Opportunity:
Patients withprimary cataract (men and women, from 18 years old), 50% ofpatients that undergo the surgery of primary cataract

Team Highlights:
Collaboration with a commercial entity on surface modification of the material, access to patients thanks to the joint workplace with University Hospital Brno, the interaction between life science and material technologies thanks to the collaboration with CEITEC BUT, facilities of the university TTO team

SPARK®
FACULTY OF MEDICINE, MASARYK UNIVERSITY

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NeoPredics

Predictive analytics for preeclampsia and premature birth

NeoPredics

Mission

Making sure that every baby has the best possible start into life by supporting clinicians during the first 1,000 days of life (from conception through the 2nd birthday) to predict the development of certain biomarkers and with that improving medical outcomes before symptoms occur.

Product & Solution

The PreFree algorithm (SaaS) is being developed in collaboration with the Charité (Berlin, Germany).

This patient-centered solution is developed based on a clinical outcome database and user research with patients and physicians. The solution aims to support physicians to identify the individual risk for preeclampsia, and to decide whether to hospitalize patients in need or to allow patients with low risk to return to their homes. The decision support solution will be complemented by a remote monitoring system that enables women returning home to closely monitor their signs and symptoms in a close loop with their physicians.

Investment Thesis

Impact:
The current golden standard only allows to diagnose preeclampsia, not to predict preeclampsia. Risk stratification at the beginning of a pregnancy is a statistical approach, not an individualized predictor. PreFree can predict preeclampsia and premature birth because of it and reduce morbidity, mortality, length of stay and overall healthcare expenditure.

Market Opportunity:
Every pregnancy (more than 220m p.a. globally),
TAM = +2bn

Team Highlights:

- Thorsten Waloschek, CEO (Germany, USA), senior executive industry expert
- Prof. Sven Wellmann, Children's Hospital of Regensburg, Germany
- Prof. Marc Pfister, Children’s Hospital of Basel, Switzerland
- Prof. Stefan Verlohren, University Hospital of Hamburg, Germany

SPARK WESTERN

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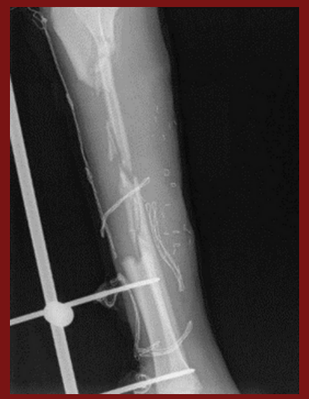
OSSEOLITH

Fillable Hybrid Scaffolds for the treatment of critically-sized bone defects

CHARITÉ
UNIVERSITÄTSMEDIZIN BERLIN

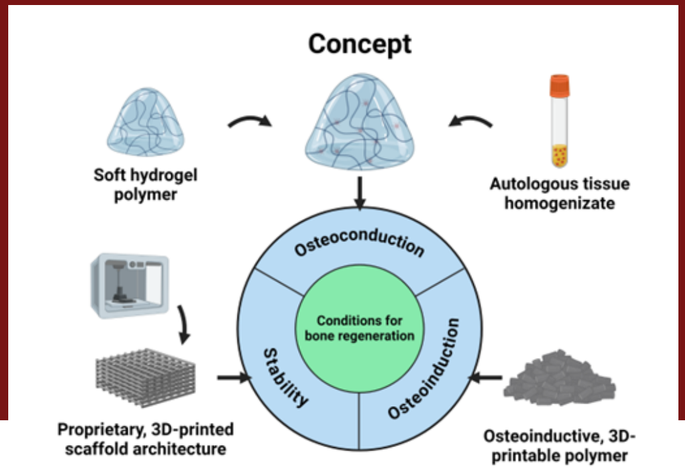
Mission

We develop innovative, patient-centered solutions to overcome the limitations of current **segmental bone defect** treatment — reducing complications, surgical burden, and recovery time while enhancing regenerative success in complex musculoskeletal reconstruction.



Product & Solution

A **bioadaptive hybrid implant** combining a mechanically resilient, osteoinductive scaffold with a cell-friendly hydrogel-matrix to enable structural stability, rapid ossification (bone regrowth), and seamless integration for segmental bone defect repair.



Investment Thesis

Impact:
OSSEOLITH delivers a scalable, bioadaptive solution for segmental bone repair, backed by a world-class research team and positioned to transform orthopedic trauma care.

Market Opportunity:
Addresses the limitations of existing bone substitutes with a modular, customizable design, offering compatibility with established surgical workflows and potential for bio-/chemoaugmentation (e.g., antibiotics, autologous growth factors).

Team Highlights:
Led by trauma surgeons and biomaterials experts at Charité, ensuring a clear path from preclinical development to clinical application.

SPARK
BIH

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Otos

Early detection. Early action. Detecting hearing loss in primary care.

Mission

5x the world's hearing diagnostics capability to enable universal hearing screening.

1 in 4 people will be having hearing loss by 2050; 80% undiagnosed. Timely detection is essential to avoid worse outcomes and 1 trillion in global annual losses due to unattended hearing loss.

Many people with hearing loss wait years before diagnosis, because existing tests are specialized, time-consuming, and require dedicated clinical professionals. **Otos** aims to **close the gap** in early hearing detection by offering an **easy-to-use** and **accessible, yet clinically valid**, diagnostic solution—so no one's hearing problems go undetected or untreated.

Product & Solution

- **Integrated System:** A digital otoscope (OScope) and an automated audiometry module (OScreen) combined into a single device. Our patent-pending technology enables non-clinical staff to safely perform three gold-standard tests in parallel—each 50% faster than traditional methods—with minimal paperwork.
- **Actionable Insights:** Generates immediate, clinically valid screening results, highlights next steps, and helps triage for specialized care.
- **Design for Low Training:** Plug-and-play interface so staff in primary care, pharmacies, or remote telehealth setups can use it with minimal training.

Investment Thesis

Impact:

Faster & Simpler: Doctors can refer multiple patients in minutes vs. hours

Cost-to-revenue: Turning backlog costs into referral-driven revenue.

Market Need: for the tools that enable adult hearing screening.

Market Opportunity:

We compete in the growing primary care diagnostics market, which we estimate to be a $6.1 billion opportunity.

Revenue Streams: device sales, subscription, and consumables.

Team Highlights: Clinical & Technical Expertise:

CEO (Wycliffe): Medical device R&D

COO (Tanja): International Operations

CTO (Ville): 15+ years in tech & clinic,

Chief Medical Officer (Saku): Practicing otologist with industry ties & world-class clinical expertise.

SPARK FINLAND

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Project ‘REMEDIER’

Radiomics and high-prEcision ML-assistEd Diagnosis of lung dIseases in mEdical imageRy

Aston University
BIRMINGHAM UK

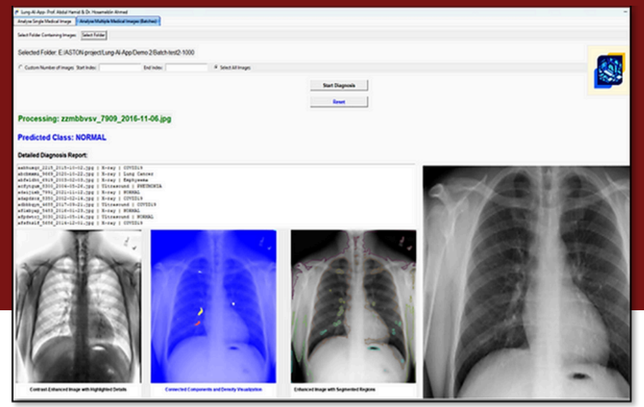
Mission

Respiratory diseases affect one in five people in England and are the third leading cause of death. REMEDIER is designed to support radiologists by providing a high-accuracy, AI-powered diagnostic solution for lung diseases, including lung cancer, COVID-19, pneumonia, and COPD. Using CT, X-ray, and ultrasound imaging, REMEDIER enhances diagnostic efficiency and helps address the NHS backlog caused by workforce shortages, ensuring timely diagnosis and better patient outcomes.

Product & Solution

The REMEDIER system leverages AI and radiomics for precision-driven lung disease diagnostic. Key features include:

- AI-powered diagnostic support for X-ray, CT, and ultrasound images.
- Advanced image enhancement tools to aid radiologists in identifying abnormalities with higher accuracy.
- Real-time batch processing for faster hospital workflows and improved efficiency.
- Scalable and transportable solution, running efficiently on laptops with moderate specifications.
- Explainable AI (XAI) integration to enhance interpretability and trust in the decision-making process.



Investment Thesis

Impact:

Unlike current solutions that rely on a single imaging type, REMEDIER enhances diagnostic accuracy, optimises radiologists’ workflow, and expedites clinical decision-making, contributing to early and effective treatment.
The algorithm for REMEDIER can further be worked up for other disease states.

Market Opportunity:

The NHS annual bill is £11b on lung disease diagnosis and treatment. As per the NHS Long-Term plan (2019) early and accurate diagnosis of conditions like COPD can reduce emergency admissions by 20%, readmissions at 30 days by another 20% and prescription spending by 10%.

Team Highlights:

REMEDIER is being developed by a multi-disciplinary team from The Sir Peter Rigby Digital Futures Institute and will be undergoing proof of concept with South Warwickshire Foundation Trust and George Eliot NHS Trust this year.

SPARK
THE MIDLANDS

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Puringe

Pure syringe system for accurate and contamination-free injections

CHARITÉ
UNIVERSITÄTSMEDIZIN BERLIN

Mission

200 million people are affected by macular degeneration leading to 20 million intravitreal injections per year.

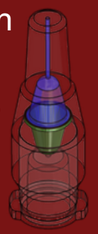
In commonly used syringes, silicone oil is the most prevalent lubricant. The injection of silicon oil droplets into the eyeball can lead to vision impairing floaters, sustained increase in intraocular pressure and endophthalmitis, a rare but severe ocular inflammation that can lead to vision loss.

In addition, precise dosing of small volumes (50µl) is hardly possible with commonly used syringes – leading to high numbers of over- / underdoses with severe consequences for patients and waste of expensive drugs.

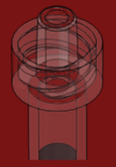
Product & Solution

The Puringe is a syringe system designed to address two major challenges for intravitreal injections: accurate small dosing and contamination-free injections

The Puringe is a drug con- tainer that can be attached between any common needle and syringe via LuerLock for pre-filled or self-fillable applications



Key element is an innovative membrane (green) that separates the drug (blue) from the syringe and thus permits overdosing and contamination by the syringe.



Investment Thesis

Impact:
No syringe on the market can address both problems: accurate dosing and contamination-free injections

Market Opportunity:
20 million intravitreal injections per year (CAGR of 4.2% till 2034) with prices of up to 10€ per syringe (without drug).
Platform technology for other sensitive drugs, e.g. mRNA and protein-based drugs, cell therapy and cosmetics.

Team Highlights:
Three experienced medtech engineers combine executive startup experience, a series of inventions with multiple patents, and certified expertise in regulatory affairs.

SPARK
BIH

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SpectroCor Ltd

Real-time oxygen monitoring for safer heart surgery

SPECTROCOR
STRIVING FOR PERFECTION

Mission

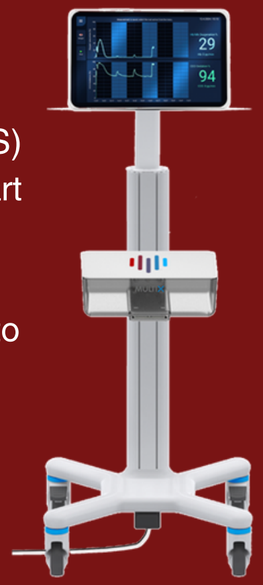
Currently, there is no reliable, direct method to assess myocardial oxygen levels during cardiac surgery, which leads to challenges in optimizing heart protection strategies. This gap can result in ischemia/reperfusion injury, prolonged recovery times, and mortality.

Our solution provides surgeons with **dynamic, real-time feedback** on heart tissue oxygenation, enabling them to make immediate adjustments to perfusion and cardioplegia strategies. By doing so, we aim to reduce the risk of heart damage during surgery, improve recovery, and ultimately enhance long-term patient outcomes.

Product & Solution

SpectroCor's product is a **real-time, non-invasive monitoring system** designed to measure myocardial oxygenation during cardiac surgery.

It consists of a single-usesensorthat uses Near-Infrared Spectroscopy (NIRS) to track oxygen levels in heart tissue, paired with a monitor that provides surgeons with immediate, actionable data to optimize myocardial protection and improve surgical outcomes.



Investment Thesis

Impact:
The combination of our patented sensor head and unique tissue spectrometry algorithms makes us the only group able to measure oxygen at the mitochondrial level (CCOx). This technology provides a unique, high-value opportunity for several surgical applications.

Market Opportunity:
2M heart operations are performed annually. We have strong support from the cardiac surgical community, which helps us in market entry.

Team Highlights:
Our team is a combination of successful entrepreneurs, clinicians, and engineers with experience in successfully bringing medical devices to market.

SPARK FINLAND

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Voxel Analytics

Imaging Clinical Decision Support Software for Paediatric Cancer

Aston University
BIRMINGHAM UK

Mission

Medical imaging has become a mainstay of diagnosis for many diseases. Imaging is becoming increasingly complex in the information it provides as the number of scans undertaken expands. This provides a massive challenge for clinicians who interpret the scans. Many research studies have shown that when advanced medical imaging is combined with computational analysis, including machine learning, diagnosis, prognosis, and disease monitoring are improved.

It is challenging to provide these advanced techniques to clinicians in real-time in a manner that enhances their clinical workflow. Our mission is to achieve this through computerised clinical decision-support systems.

Product & Solution

We have developed an imaging analysis and clinical decision-support software platform that can link to clinical databases to provide accurate diagnostic information.

Processing capabilities cover a range of traditional and advanced image analysis methods, as well as MRI-based biomarker identification and AI-assisted diagnosis support when connected to imaging data repositories.

The system has been employed to provide clinical decision-support for childhood cancer and is currently undergoing testing with clinical collaborators. The system can also be a training platform for clinicians learning to interpret advanced imaging techniques.

Investment Thesis

Impact:
Our clinical decision support system will assist clinicians in scan interpretation with repository comparison, maximising the information extracted whilst minimising time taken.

Market Opportunity:
Approx 4 million (England)/ 40 million (USA) MRI scans, a core imaging modality for cancer diagnosis, are performed each year.

Team Highlights:
Our team includes leading clinicians and scientists with 30 years pioneering experience in the field of medical imaging and health technologies, backed up by a national consortium.

SPARK
THE MIDLANDS

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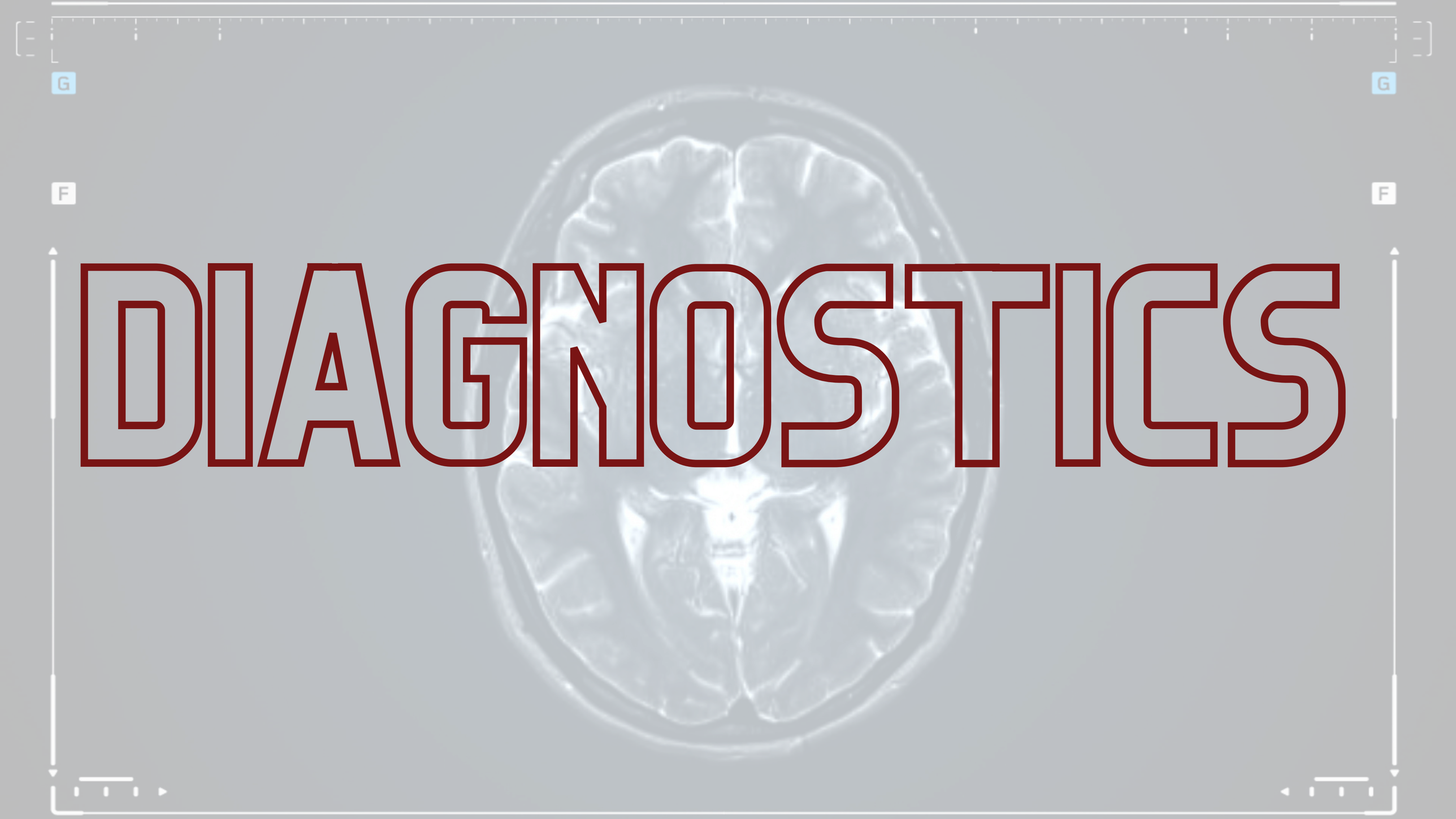
DIAGNOSTICS

3DFLUOHISTO

Providing new histology solutions

UNIVERSITY OF TURKU

Mission

•Current histological tissue analysis methods were invented decades ago and are slow, expensive, prone to errors, and they have a low throughput.

•This impacts diagnosis in number of disease and affects decisions made in drug development.

•Our mission is to create new histology solutions to improve drug development process and patient diagnostics

Product & Solution

•3D-FLUOHISTO tackles these challenges by bringing the new technology and services to enable advanced approach for tissue analysis.

•Enables sectioning-free fast processing and 3D analysis of histological samples.

•Provides sample analysis as full service model for fast and easy adoption of new technology.

Investment Thesis

Impact:
3DFLUOHISTO creates 3D histological data 10x faster, with better resolution than traditional histology methods 2D data.

Market Opportunity:
1st Drug development
2nd Clinical diagnostics (specific segment to be identified).

Team Highlights:
Relevant technological expertise;
Scientific experience;
Solution and customer oriented team.

SPARK FINLAND

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AD-iPSC

MUNI MED Masaryk University Faculty of Medicine

Advanced Induced Pluripotent Stem Cell Lines for Alzheimer's Disease Modelling

Mission

Our mission is to **address the unmet clinical need in Alzheimer's disease (AD)** research and treatment. AD affects **millions of elderly individuals globally**. However, the majority of AD research has traditionally relied on animal models, which do not fully replicate the human-specific nature of the disease. Thus, to date, **hundreds of clinical trials have failed in humans**, highlighting the urgent need for human-specific models that can more accurately predict drug responses.

Our approach focuses on **providing commercially available induced pluripotent stem cell (iPSC) lines**, specifically engineered for AD research, to **support effective drug screening and efficacy tests in preclinical settings**. Furthermore, we recognize the necessity for experienced laboratories skilled in analyzing AD-like pathology, ensuring that our iPSC lines are not only tools but part of a broader solution enhancing the precision of AD research.

Product & Solution

We will offer **commercially licensable induced pluripotent stem cells** (iPSCs) with complete documentation **for legal commercial usage**. iPSC lines will be genetically engineered to carry Alzheimer's disease-causing mutations or risk genes, such as APOE. We plan to introduce to them the transgenes to facilitate **neuron differentiation** from iPSCs.
All iPSC lines will undergo **rigorous characterization and biobanking** to meet the highest quality standards.

Importantly, **iPSCs will be 1) available for purchase as a product** and will also be **2) used in future services for custom drug testing** and other experimental applications. This approach not only streamlines drug development processes but also offers a **more accurate model for human disease studies,** enhancing the predictability and effectiveness of therapeutic outcomes.

Investment Thesis

Impact:

- Our product transitions iPSC technologies from experimental lab settings to commercially viable applications.
- We provide a novel opportunity for pharmaceutical companies to utilize human-relevant preclinical models.

Market Opportunity:

- Pharmaceutical and biotech **companies**
- Research **Institutions**
- AD **Drug development pipelines** (currently active clinical trials: 164)

Team Highlights:

- **Extensive Experience:** Our team brings over 20 years of expertise in stem cell biology and over a decade in disease modeling, positioning us as leaders in the field.
- **Proven Track Record:** We possess the technological know-how and established methodologies for product development as well as for comprehensive service offering

SPARK®
FACULTY OF MEDICINE, MASARYK UNIVERSITY

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BactColDetect

Early stage detection of bacterial infections on central venous catheters

FRIEDRICH-SCHILLER-UNIVERSITÄT JENA

Mission

- Infections acquired during medical procedures are a massive problem in modern healthcare.
- Central venous catheters (CVC) are the most common cause of sepsis during clinical treatment, with lethality rate up to 25%
- Detection of infections on CVCs is usually only possible after the device has been surgically removed
- Early detection would allow rapid treatment reducing patient trauma and chance of sepsis

Product & Solution

- Catheter coating for early-stage detection of infections via an easy to visualise colour change
- Potential to differentiate between Gram positive and Gram negative infections
- Components of the product have pre-existing regulatory approval.
- Simple to integrate with existing CVC production technology

Investment Thesis

Impact:
Simple approach to point of care detection, combined with superior ease of use and compatibility with existing CVC designs

Market Opportunity:
Infections acquired during medical procedures represent a global market of $18.0 billion. Our technology addresses the most common cause of these infections.

Team Highlights:
Project leader: Prof. Dr. Rosalind J. Allen
Laboratory manager: Dr. Anne Busch
Project coordinator: Moritz Wiegand

SPARKFLI

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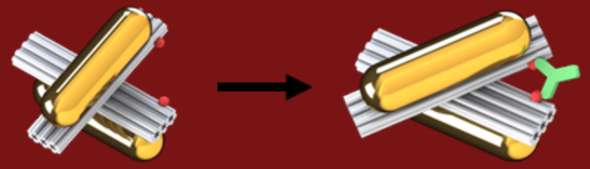
Colorific

Revolutionising point-of-care test for reliable disease diagnosis

Mission

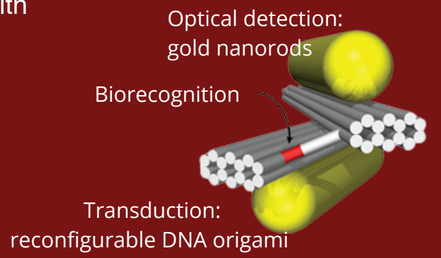
We tackle the critical missing gap in diagnostics -
between laboratory-grade immunoassay tests and rapid lateral flow assay tests.

By harnessing nanoswitches for direct sample-to-answer detection, we aim to provide a better diagnostics platform to empower clinicians with trustworthy diagnostics - accelerating treatment, and alleviating healthcare burdens.



Product & Solution

Our sustainable, easily scalable nanoswitch technology can be tailored to detect a wide range of molecular targets in human health and beyond.



Key Benefits:

- Rapid & Direct readout (preparation-free, < 30min)
- Versatile & Adaptable (Quick customization and product development)
- Sustainable & Scalable (Eco-friendly manufacturing)

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Investment Thesis

Impact:
Novel detection mechanism and platform technology offering a step-change in rapid diagnostic assay development and testing

Market Opportunity:
Large addressable global market driven by rising demand for fast, more accurate, and sustainable diagnostic solutions

Team Highlights:

- Originating from the Finland's leading technology hub
- Strong deeptech, point-of-care diagnostics background and entrepreneurship readiness

SPARK FINLAND

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Cytecom

Electrophysiology-based rapid diagnostic for antibiotic-resistant infections

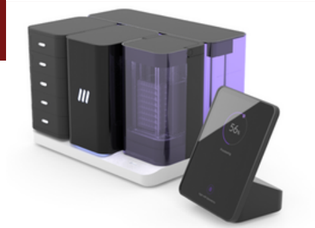
Mission

To revolutionise antimicrobial susceptibility testing (AST) with rapid, real-time diagnostics that enable faster, targeted treatments – saving lives and reducing healthcare costs.

UNMET CLINICAL NEED

Antimicrobial Resistance (AMR) is a global health crisis.

- **1.3M deaths annually,** projected to reach **40M by 2050.**
- **Sepsis mortality rises 7.6% per hour of delayed treatment.**
- **1.7M sepsis patients** per annum in US – **36% linked to AMR**
- Current AST methods take 24-48 hours, delaying effective therapy.



Product & Solution

Our patented **Optical Electrophysiology** platform combines **time-lapse fluorescent microscopy**, **bioelectricity, and AI** to deliver **rapid AST results**.

Co-developing with Leicester NHS for clinical validation, backed by **peer-reviewed studies (PNAS, mBio).**

✓ **Live-Saving Speed** – Detects bacterial response in 4**5s**, delivers AST results in <1h for faster, targeted treatment.

✓ **Broad-Spectrum Accuracy** – Works across **diverse bacteria & antibiotics** via universal ion channel activity.

✓ **Seamless Workflow** – Direct detection in clinical fluids e.g. blood, no sample prep needed.

✓ **AI-Driven Automation** – **Real-time data interpretation** and hospital integration for optimised treatment decisions.

✓ **Future-Ready** – Potential for **Direct-From-Sample AST**, accelerating adoption and impact

Investment Thesis

Impact:
Cytecom's rapid AST delivers results in under 1 hour (vs. 24-48 hours for traditional methods). AMR solutions yield up to 59:1 ROI, saving $97B annually in healthcare and adding $960B to GDP in high-income countries.

Market Opportunity:
The $4.3B AMR diagnostics market is rapidly growing, addressing $66B in global AMR healthcare costs. Our rapid diagnostic solution could save hospitals $1.6K per sepsis patient by reducing ICU stays and readmission rates, delivering critical cost and care benefits.

Team Highlights:
•Dr. Magdalena Karlikowska (CEO): AMR & diagnostics expert, ex-UKHSA.
•Dr. James Stratford (CTO): Lead innovator in bioelectricity and imaging.
•Dr. Munehiro Asally (Co-Founder): Academic leader in bacterial electrophysiology.
•Advisory Board with clinical, regulatory and commercial expertise.

SPARK
THE MIDLANDS

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Donor Specific Cell Free DNA Analysis in Kidney Transplant

A new method to diagnose kidney transplant rejection with a blood test

UNIVERSITY OF BIRMINGHAM

Mission

To diagnose kidney transplant rejection without the need for a biopsy.

Biopsy carries significant risk including bleeding and transplant organ loss.

Biopsy for clinical suspicion only yields 40% diagnosis of rejection. Biopsy is only performed once renal function has deteriorated – organ damage has already occurred.

Advanced genetic sequencing technology exists which can detect transplant organ damage using a blood test (donor specific cell free DNA, (dscfDNA)), but currently this cannot tell the difference between rejection of the organ and other damage such as infection.

Product & Solution

Nanopore sequencing of dscfDNA can provide more detail than current methods of dscfDNA analysis.

Methylation signatures and cell of origin of dscfDNA can be identified, allowing mechanisms of transplant organ injury to be identified with a blood test.

Routine blood sampling is integral to post transplant surveillance. Analysis of dscfDNA with Nanopore sequencing could provide an early warning signal of organ injury and treatment initiated before damage has occurred.

Investment Thesis

Impact:
Novel dscfDNA test which could reduce the number of kidney transplant biopsies, provide an early warning signal of transplant dysfunction and personalise immunosuppression

Market Opportunity:
3,100 new kidney transplants each year in the UK, 32,627 performed in last 10 years all requiring lifelong follow up – 1 million routine blood samples. Potential application to other organ transplant types increasing market opportunity.

Team Highlights:
Tom Nieto is a consultant renal transplant surgeon at University Hospital Birmingham - the largest solid organ transplant hospital in Europe.
Professor Andrew Beggs is a leading expert on Nanopore Sequencing and has developed multiple novel applications of this technology

SPARK
THE MIDLANDS

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EMblEm

MUNI MED Masaryk University Faculty of Medicine

Detection of extramedullary disease in multiple myeloma based on liquid biopsies

Mission

The mission of this project is to find minimally invasive markers for multiple myeloma (MM) patients. MM is the second most common hematological malignancy of malignant plasma cells in the bone marrow. In some cases, these cells can lose their dependence on the bone marrow microenvironment and migrate out of it – so-called extramedullary disease (EMD). EMD is usually found by imaging methods (PET-CT, MRI) that are not available in all centers and can be quite demanding for the patients. EMD is a negative prognostic factor and needs to be diagnosed as quickly as possible.

Product & Solution

The product is a new diagnostic approach for EMD patients.

Our proof-of-concept study aims to develop a multiparametric algorithm for EMD detection using minimally invasive liquid biopsy. Specifically, MALDI-TOF mass spectrometry (MS) and small RNA sequencing of microRNAs will be used to distinguish EMD patients from MM patients. The approach will be validated against PET/CT scans to assess accuracy, sensitivity, and specificity. Our method simplifies diagnostics, reduces patient burden, and improves accessibility.

Investment Thesis

Impact:
Our approach is minimally invasive, faster, cheaper, repeatable, and does not put undue burden on patients.

Market Opportunity:
MM patients' survival has increased but at the same time, EMD incidence is increasing (10-20%). EMD is a clinical challenge even now. Thus, we want to address this diagnostic gap by providing accessible methods for EMD detection.

Team Highlights:
Collaboration with clinical team: access to experienced clinicians, samples, and clinical data. Themolecular team is experienced and has been involved in MM research for over 10 years.

SPARK®
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Feanalytic

Non-invasive Diagnostics for Chronic Gut Diseases

Mission

Prolonged time for diagnosis is a burden for patients suffering from chronic gut symptoms.

Inflammatory Bowel Disease (IBD) is severe autoimmune disease. Its global prevalence and healthcare costs are rising.

The diagnostic challenge for clinician is to distinguish IBD from other gut diseases with similar symptoms, especially Irritable Bowel Syndrome (IBS).

Our solution helps patients to receive correct diagnosis and personalized treatment in shorter time and with less discomfort.

Product & Solution

Feanalytic is set to develop diagnostic solutions based on our discovery of new gut disease biomarkers.

First target solution is an IVD test kit for the detection and monitoring IBD and its subtypes from patient stool samples.

Our assay provides greater specificity than current diagnostic tests for IBD. The specific IBD assay will also reduce the burden from unnecessary colonoscopies.

Investment Thesis

Impact:
Feanalytic streamlines the current multi-stage approach in diagnosing suspected IBD cases.

Further biomarker discoveries have the potential to revolutionize the diagnostics of other lifestyle-associated gut diseases.

Market Opportunity:
10-15 % of population suffer from chronic gut symptoms. Globally 7 million people are diagnosed with IBD while IBS affects the life quality of 800 million.

Team Highlights:
Feanalytic team has deep expertise in cell biology, biotechnology and gut health, strong IPR and a drive to turn research discoveries into impactful solutions. We have also received grants from Business Finland and the NovoNordisk Foundation.

SPARK FINLAND

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Intelligent Mass Spec Solutions

Precision Diagnosis of Metabolic Conditions

Mission

The Company: Diagnostic platform (machine learning algorithm) based on unique chemical signatures of disease measured by mass spectrometry

The Opportunity: £100m+ global opportunity in:

- Adrenal cancer (ACC)
- Polycystic ovarian syndrome (PCOS) Endocrine hypertension

Revenue for ACC anticipated ca. 2027 onwards

The Basis: Over 15 years research and data from Prof Wiebe Arlt Lab

IP & know–how: 3 granted patents with further patent opportunities

Team: Experienced team with world leading expertise in metabolic conditions, commercialisation and strategy

The Ask: £750K

Product & Solution

Close to revenue ACC opportunity (ACCelerate algorithm) that easily integrates within current diagnostic pathways (low-cost base)

Non-invasive: urine test
•No need for blood draws

Faster: ca. 2-week turnaround time
•Sample taken at home; no hospital travel / take time off work

Safer: < exposure to radiation
•Fewer scans for patients

Increased certainty of diagnosis:
•Fewer unnecessary surgeries

Pivot: expand to larger markets; e.g. polycystic ovarian syndrome
•Method and algorithm readily adaptable & scalable

Investment Thesis

Impact:

- ACC – 4 x more accurate than CT scans alone (current gold standard)
- PCOS – aims to be first-in-class diagnostic to diagnose & stratify patients to treatment;

Market Opportunity:

- ACC - 35,000 tests for malignancy required annually in the UK; no current certified test
- PCOS – up to 15% of women affected; >70% currently undiagnosed; burden of disease in US >$4bn pa

Team Highlights:

Experienced team with track record of delivery & exit:

- **Martin Whitaker, PhD (CEO)**
- **Liz Dainty, ACA (CFO)**
- **Prof Wiebke Arlt, MD (CSO)**

SPARK
THE MIDLANDS

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M13 test

Blood-Based Test for Early Detection of Solid Cancers

UNIVERSITY OF OSLO

Mission

Solid cancers remain a leading cause of mortality worldwide, with delayed diagnosis and limited monitoring tools creating significant barriers to effective treatment. Our mission is to develop innovative solutions that enable earlier detection and improve patient outcomes.

Product & Solution

We are developing a non-invasive diagnostic test that utilizes a novel biomarker to deliver high sensitivity and specificity for the early detection of solid cancers.

Business opportunity/Call to action

- Early detection of solid cancers remains a critical unmet need, with no existing low-cost, highly sensitive solutions available.
- Our goal is to establish an investable spin-out rooted in strong R&D while actively pursuing strategic partnerships and market opportunities.

Investment Thesis

Impact:
Our novel, blood-based diagnostic test enables early detection of solid cancers and has the potential to become a standard screening tool in routine patient check-ups and annual exams.

Market Opportunity:
The global cancer biomarker market is projected to reach **$42 billion** by 2029, with a **CAGR of 11.3%,** presenting a significant growth opportunity for innovation in early cancer detection.

Team Highlights:

- Project Leader -Senior Researcher Carmen Herrera
- Project Member - Prof. Pål Falnes
- Senior Innovation Advisor, Katja Miøs (UiO Growth House)
- Project Coordinator - Chelsea Ranger, (C. Ranger Consulting, Women in Life Science Norway)
- Project Mentor - Tonje Steigedal (CEO, Lybe Scientific)

SPARK NORWAY

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MONCYTE Health

Personalising treatment for high cholesterol

Mission

All patients are started with statin medication and for majority the trial-and-error continues for years, which can put patients at a high risk for heart attack and stroke. It is difficult for clinicians to evaluate the real risk of patients who should be treated more effectively beyond the regular initial therapy.

We aim to personalize the treatment providing optimal treatment recommendation and in-depth cardiovascular risk assessment based on capacity of cells to process cholesterol. Our technology is significantly different from other tests. Rather than quantify biomarkers present in blood, we quantify cellular processes affecting them. This unique insight provides the possibility to predict an optimal treatment strategy and overcome current approaches of trying out medications and measuring the effects later.

Product & Solution

Unique proprietary technology to quantify individual differences in cellular lipid uptake and storage which contribute to high blood cholesterol and the effectiveness of common lipid-lowering drugs. The readouts are derived from white blood cells, which play key roles in atherosclerotic plaque formation and inflammation, linking directly to cardiovascular risk.

Precisely quantifying these individual differences enables personalized treatment strategies in combination with risk assessment which can help patients more effectively achieve lower blood cholesterol levels faster and reduce the risk for cardiovascular disease. Technology also provides insight for pharmaceutical companies on how novel lipid lowering drugs influence cellular processes contributing to cardiovascular risk.

Investment Thesis

Impact:

-Gold standard is measuring cholesterol levels and trying out different treatments over time → high risk for cardiovascular disease and death

-Novel approach that can optimize current practises

Market Opportunity:

-Cardiovascular disease is #1 cause of death worldwide and is the biggest market

-Over 1.5 billion people affected by high cholesterol

-Burden on health providers

-Currently 80 % of patients with too high levels of cholesterol = high risk

Team Highlights:

-We have an experienced, winning team that get things done

-Traction from the market

-First customer signed

-Current investment from VCs, family office and angel investors

SPARK FINLAND

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MULTIVISIONdx

Personalised diagnostics for solid tumours

MULTIVISIONdx

Mission

MultivisionDx aims to transform the personalized diagnosis and treatment of cancer. With the development of targeted therapies that are highly effective, but also costly and applicable only in a subset of patients, the demand for better diagnostic and prognostic tests is enormous. Inaccurate prognosis often leads to suboptimal therapy, where patients might receive ineffective treatments or miss out on more suitable options, ultimately affecting their survival rates and quality of life. Thus, there is a critical need for higher precision of prognostication.

Product & Solution

MultivisionDxTM is a high-throughput machine learning and computer vision workflow for the analysis of multiplexed solid tumor biopsies. Our patent-pending biomarker discovery platform automatically analyses hundreds of patient samples at the single-cell level and stratifies patients into groups according to treatment responses and prognoses. The technology is validated in over 2000 head-and-neck and colorectal tumors, with proof-of-concept published in the prestigious journal Cell. Our first product is a patent-pending compound biomarker for treatment response in head-and-neck cancer.

Investment Thesis

Impact:
MultivisionDx combines the automation of digital pathology with the precision of single-cell biology. By harnessing machine learning to analyse large spatial datasets, we provide oncologists with actionable decision support that will directly improve patient outcomes.

Market Opportunity:
MultivisionDxTM can scale to any solid cancer or other disease where biopsies are taken. Our first two indications have an estimated TAM of €3B, and the technology can produce powerful companion diagnostics.

Team Highlights:
Our founders have traction in world-class science, scaling life science business and building industry-standard software.

SPARK FINLAND

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NADMED Ltd

Measure NADs from blood, tissues and cells like never before

Mission

Measuring NADs and glutathiones – the cellular redox regulators – has been complicated or impossible to date. The importance of this information is rapidly growing in importance for understanding human health and providing new insights into metabolic changes following the treatment of many diseases.

Product & Solution

NADMED possess a novel capability to assess a patient's metabolic state — a key factor in advancing precision medicine and addressing a wide range of diseases and disorders.

With NADMED's technology, any clinical laboratory can deliver critical insights into patients' metabolic states to clinicians, researchers, and pharmaceutical companies.

NADMED's kit is the only CE-marked medical device available for measuring NAD levels in blood. Additional kits are offered for research use only (RUO), and all analyses are also accessible as a service.

Investment Thesis

Impact:
Our solution is entirely novel, as no other technology can measure all NADs directly from blood. NADMED's NAD+ results match the accuracy of low throughput Mass Spectrometry, while being significantly more affordable and accessible.

Market Opportunity:
Affected NAD levels are associated with cancer, neurodegenerative and metabolic diseases, long COVID and muscle pathologies like fatigue.

Team Highlights:
NADMED employs 13 research, business, and marketing professionals.
Core team:
Jari Närhi, CEO
Liliya Euro, CSO
Jana Buzkova, COO
Current investment from VCs and angel investors.

SPARK FINLAND

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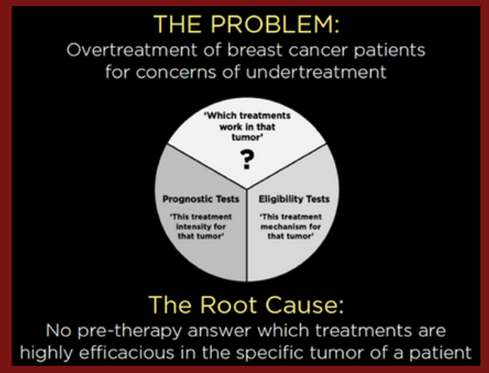
OncoGenomX / PredictionStar

Matching Breast Cancers (BC) & Treatments for Clinical Success

Mission

Eliminating over- and under-treatment.



Approach:

Product & Solution

Unlike traditional breast cancer tests that measure prognostic markers or drug targets, PredictionStarTM relies on markers predicting treatment and tumor specific outcomes at an accuracy > 85%. The benefit: Pre- therapy forecasting which treatments will likely work in an individual tumor, and in which patient. These forecasts are powered by three technologies:

- An innovative cancer profiling test
- Software matching tumors to the most effective treatments
- Outcome modelling software

The result: An integrated 360 degree view of a patients tumor using information that is routinely collected during a patient's diagnostic journey.

Investment Thesis

Impact:
Traditional BC tests guide therapy choice or intensity. PredictionStarTM ranks treatments by success probability for optimal care.

Market Opportunity:
- 750K breast cancer cases/year
- 50% over- or undertreated
- Only 1 in 2 treatments successful

Team Highlights:
Leadership team with track record of success, e. g. a CEO who led the global development and registration of a breakthrough breast cancer treatment, a CDO who is a pioneer in the field of deep learning and outcome prediction modelling, a CTO who built and sold a a cutting edge cancer screening platform, and a CFO with a track record of multiple Series A fund raises and successful exits.

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ProMental Health

Blood Test for the Early Diagnosis of Alzheimer’s Disease (AD)

Mission

Alzheimer's disease (AD) is the most common form of dementia, with someone in the world developing dementia every 3 seconds. However, three-quarters of individuals with dementia remain undiagnosed, leaving them without access to treatment, care, or organized support.
Early diagnosis is critical for enabling available treatment options, yet **no accurate, non-invasive, and affordable diagnostic tool for AD currently exists.**

Existing diagnostic methods, such as PET scans and lumbar punctures, are hindered by high costs, invasiveness, and limited accessibility in primary care settings. This highlights a significant unmet need for a reliable, non-invasive, and widely accessible diagnostic test to detect AD in primary care environments.

Product & Solution

We identified a novel set of blood plasma microRNAs detectable at early stages of AD, representing a unique molecular signature of AD. Based on this, **we developed a minimally invasive and cost-effective diagnostic tes**t utilizing qPCR combined with a Machine Learning algorithm to classify samples (AD vs. non-AD) with high accuracy. The test was successfully validated in 150 AD patients and is being further optimized to meetIVDR and MDR standards as a reliable screening tool. The innovation is IP-protected (EP3449009) and is in the process of being out-licensed to ProMental Health, a pre-seed startup.

Investment Thesis

Impact:
Our approach is entirely novel, leveraging a unique miRNA panel that captures the complex and multifactorial causes of Alzheimer's disease (AD) better than classical markers such as amyloid and tau. This innovative solution enhances diagnostic precision and efficiency, addressing the diverse pathology of AD and providing a significant competitive advantage over tests solely based on the amyloid and tau hypothesis.

Market Opportunity:
There are currently over 55 million people worldwide living with dementia. Due to demographic aging, this number is projected to nearly double every 20 years, reaching 139 million by 2050. The annual global cost of dementia exceeds US $1.3 trillion and is anticipated to rise to US $2.8 trillion by 2030.

Team Highlights:
We combine scientific excellence, industry expertise, and business acumen to deliver a high-impact, innovative diagnostic to the market.

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SmartSens

Debottlenecking bioprocesses with a customisable sensor technology platform

Mission

You can’t optimize a process without measuring the right performance indicators—this is especially true in biomanufacturing, where consistent productivity and product quality are essential. Yet, in current practice, key bioprocess parameters—such as substrates, metabolites, and products—are often analyzed infrequently, typically just once a day using offline lab methods. This results in critical data gaps, making it difficult to detect process dynamics in real time and delaying necessary interventions. Our mission is to empower the biotech industry with real-time access to critical process data, enabling improved yield, enhanced process stability, increased production capacity, and a reduced environmental footprint.

Product & Solution

SmartSens is developing a radically new technology for continuous and real-time monitoring of small molecules in biosolutions relevant for biotech industry and biomanufacturing. The sensing technology includes bio-free electrochemical elements utilizing sensitive nanomaterials, delivering ultra sensitivity and selectivity. The main applications are in bioreactors across scales. We have successfully developed and tested a working prototype in both lab and production environments for continuous detection of glucose, lactate, and ammonium, with future expansions.

Investment Thesis

Impact:
Enabling automation and data-driven decision-making to enhance process performance and efficiency.

Market Opportunity:
The bio-based manufacturing industry that are relying on bioreactors for fermentation and cultivation across various sectors, including biopharmaceuticals, food ingredients, liquid biofuels, and agricultural biosolutions.

Team Highlights:
We are a diverse team with expertise in electrochemistry, physical chemistry, electronics engineering, and automation. In addition to our strong technical foundation, we have built commercial competence and are supported by advisors specializing in business development, product development, and regulatory compliance.

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TrueScreen R2B Project

Prostate cancer diagnostics - non-invasive, precise and predictive.

UNIVERSITY OF HELSINKI

Mission

We are transforming cancer diagnostics by eliminating uncertainty in early detection. Current methods miss aggressive cancers until it's too late while failing to distinguish between harmless cases and those needing urgent treatment—leading to both delayed interventions and unnecessary biopsies. Our mission is to give doctors the clarity they need to detect aggressive cancers early, avoid overtreatment, and guide life-saving decisions with confidence—through an AI-powered urine test that is scalable, clinically precise, and accessible.

Product & Solution

Our AI-powered urine test is designed for seamless integration into clinical workflows, providing a fast and accessible solution for early cancer detection. Using advanced biological analysis, it uncovers deep molecular insights from urine samples, offering a new level of precision in cancer diagnostics.

Built for scalability and efficiency, the technology extends beyond prostate cancer—addressing the same diagnostic challenges in kidney and bladder cancers. Its ease of use makes it ideal for routine screenings, patient monitoring, and reducing dependency on invasive procedures.

Investment Thesis

Impact:
Our technology provides a new standard in precision diagnostics, extracting clinically relevant insights from urine samples to enable earlier, more accurate decisions. By reducing reliance on invasive methods and improving diagnostic accuracy, it streamlines patient pathways, optimizes healthcare costs, and enhances treatment outcomes.

Market Opportunity:
Prostate Cancer Growth

- 1.4M new cases/year → 2.9M by 2040.
- Massive overdiagnosis (PSA false positives) + missed aggressive cases.

Team Highlights:
Operating within a world class deeptech ecosystems our team blends leading expertise in urology, pathology, AI-driven discovery, and commercialisation.

SPARK FINLAND

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URIKON by Kernevo

Stabilising urine cells for novel diagnostics.

URIKON

Mission

Simplify Urine Diagnostics.

Novel flow cytometry-based urine biomarkers enable accurate diagnosis of kidney inflammation and precise monitoring of disease activity for personalized treatment. This approach can significantly reduce the need for biopsies and minimize associated risks.

Why are these assays yet failing to implement?

The shelf life of urine cell samples is only 4 hours maximum. However, labs requires stable cells to produce valid results and scale services.

URIKON technology stabilizes urine cells, rendering new methods of urine diagnostics scalable for labs.

Product & Solution

The URIKON Conservation Beaker.

Our patented stabilizing agents let urine cells stay intact for up to 6 days.

By preserving the cells in urine samples, the URIKON beaker is simplifying access to precision diagnostics worldwide. Drastically.

- Labs can now scale urine cell assay services due to reduction of time constraints.
- Logistics are made simpler. Home sampling becomes possible.

Investment Thesis

Impact:
URIKON is the first solution in the market to stabilize urine cell samples.

6.8 million people with kidney disease can be monitored non-invasively with novel urine cell assays by 2030.

Market Opportunity:
137 m Kidney disease patients
€208 bn Burden of kidney care
€1.5 bn Urine cell assay market
€ 237 m URIKON market by 2030

Team Highlights:
Great Partners:
Charité, Labor Berlin.
Our strong team combines start-up veterans, researchers, chemists, sales and regulatory experts.

SPARK
BIH

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Xfold Imaging Oy

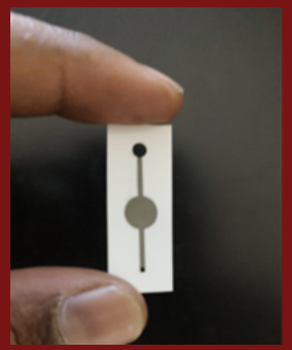
Affordable, high-sensitivity and point-of-care diagnostic device

Mission

High-sensitivity, affordable and point of care molecular diagnostic device for early detection of infectious diseases by using advanced nanophotonic technology

Product & Solution

Xfold chip



Xfold chip reader

- **High sensitivity & Specificity**
- **Lower limit of detection (LoD)**
- **Low-cost device and test**
- **Point-of-care (portable) device**

Investment Thesis

Key benefits	Gold standard- PCR tests	Xfold biosensor test
Sensitivity/ Specificity	✓	✓
Affordable cost	✗	✓
Point of care	✗	✓

Market Opportunity:
Market size for molecular diagnostic tests- 25.57 billion €/year
Focus areas: Infectious diseases

Team Highlights:
Xfold imaging Oy is a start-up company from Aalto University, Finland. The team consists of physicists, biotech/diagnostics expertise, and business strategists.

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Proud to be part of

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TRANSLATIONAL SCIENTISTS WITHOUT BORDERS

SPARK The Midlands is also esteemed to work with the following local companies:

THE WEST MIDLANDS: LIFE CHANGING SCIENCE STARTS HERE

WEST MIDLANDS GROWTH COMPANY

The West Midlands is a unique three-city region, anchored by three dynamic cities – Birmingham, Coventry and Wolverhampton.

Home to a thriving £117bn economy, it is the UK's largest regional economy, equivalent in size to Slovakia. Driven by a talent-rich population of 4.3m people – one of Europe's youngest and most diverse – the region consistently ranks as the UK's leading location for Foreign Direct Investment outside of London.

Located at the heart of the United Kingdom, it offers unrivalled connectivity, with swift, easy access to London and other cities.

The West Midlands is home to an emerging health and life sciences sector, with over 700 companies here, the UK's second largest medical school and a ten-year ambition to establish the region as a leading location for companies specialising in clinical excellence and technology.

The UK's heartland of R&D excellence, the region is home to the country's largest Medical Devices cluster, while 1 in 5 UK clinical trials are held here.

With 35 research facilities clustered around eight world-class academic institutions, it's easy to see why life sciences is a growing sector within the West Midlands.

Discover more about the opportunities for your business in the West Midlands here:

Potter Clarkson

Potter Clarkson LLP is a leading European intellectual property law firm, with a proven track record in helping investors to make well-informed decisions that deliver strong returns.

With a wealth of experience in due diligence exercises, our IP attorneys are skilled in providing an accurate assessment of a prospect's intellectual property assets and the potential pitfalls or opportunities on the horizon.

Recognised as a top tier firm, we are known for our wide-ranging technological and legal expertise, progressive thinking, deep commercial insight, approachability and clarity of advice. With the infrastructure to match its credentials as a leading European firm, Potter Clarkson's 200-strong specialist team operates from dedicated offices in the UK, Sweden and Denmark.

How we help investors maximise the return on their investments?

Intellectual property (IP) due diligence should be a non-negotiable for investors. Before you make a final decision as to whether you will invest in a business, you should have a complete picture of both the business' true long-term value and the potential risks it faces.

Conducting a thorough analysis of a target company's IP unlocks a range of commercially critical information:

- You will be able to accurately assess the value of the business' key assets.
- You will help minimise, and understand, the risk of legal disputes by confirming the ownership of and potential challenges to the IP they claim to own.
- You will also gain a better understanding of the monopoly rights of the business which can provide a competitive advantage, impact on its revenue potential and, ultimately, its potential value at exit.

Unfortunately, however, IP due diligence can quickly become overly detailed and expensive.

More frustratingly, the results sometimes provide little more than a long list of IP rights that offer no indication as to the contribution these rights make to the business. What you actually need is a much more commercial and technically and legally informed assessment of the IP involved.

You need confirmation the company you are planning to invest in has both the IP rights and the IP strategy in place to drive its business plan through to a financially successful exit, as well as advance warning of any red flags that could impact the success of your investment.

Why Potter Clarkson is the best choice to help deliver your IP due diligence and IP Risk Assessment?

The main reason is having worked with investors for decades, we understand exactly what you need from us. We have combined what we have learned to create Verify*iP*, a proven model we have developed over the last 20 years whilst working closely on IP due diligence assignments with investors in the UK, Scandinavia and Germany as well as financial institutions, law firms and other specialist professionals.

If you would like to find out more about our approach to IP due diligence and discuss how we can add value to your decision-making process, please contact us today.