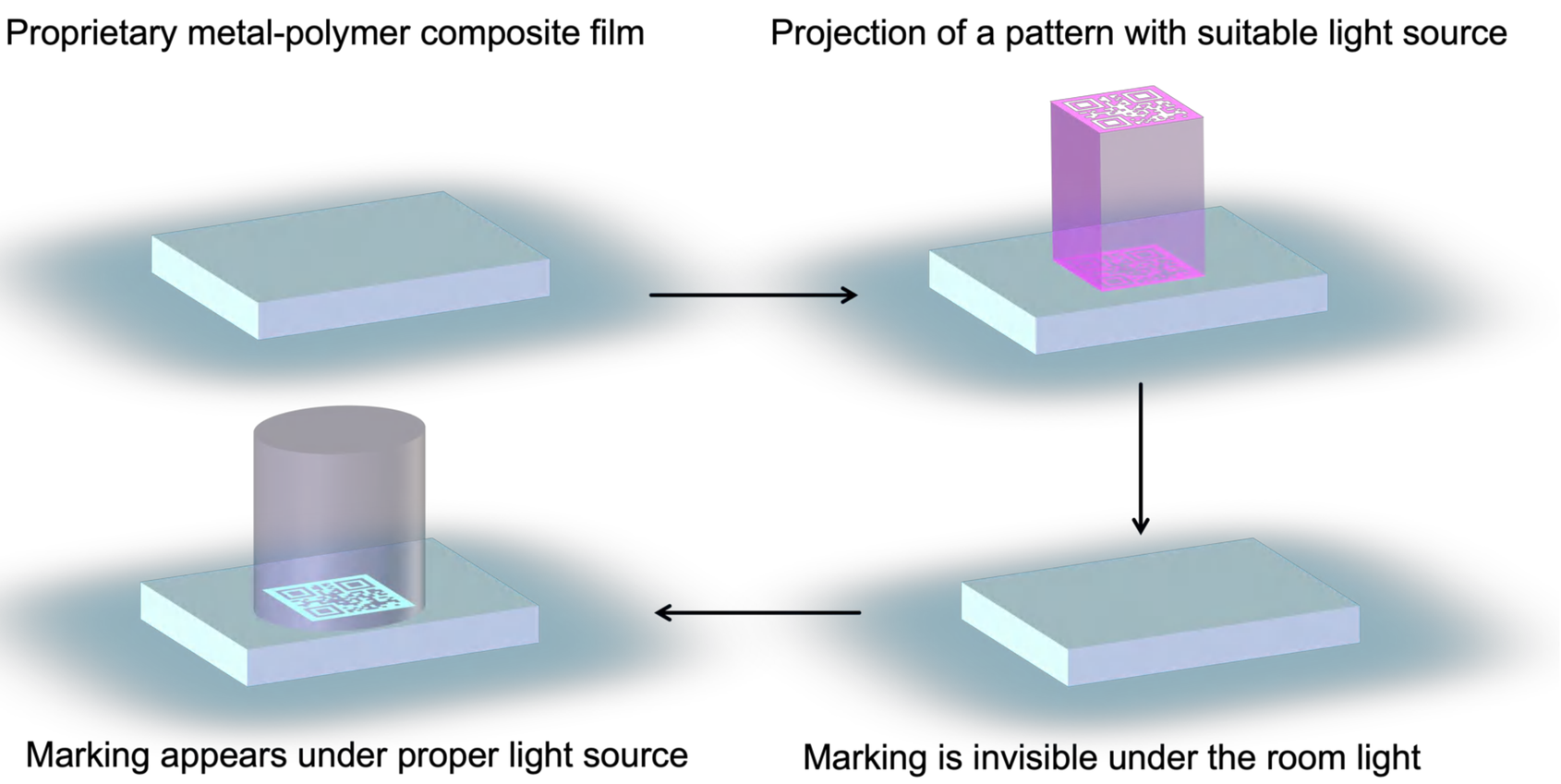
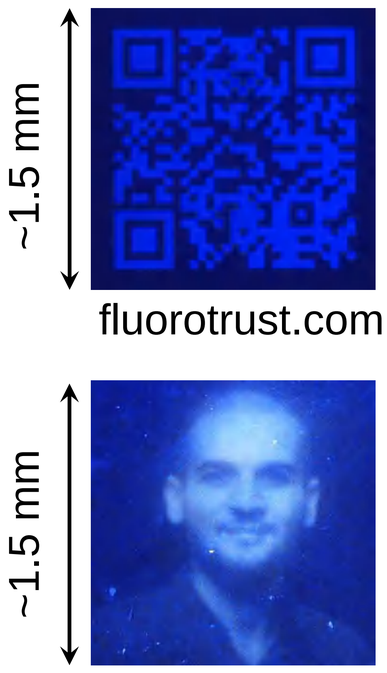
FluoroTrust

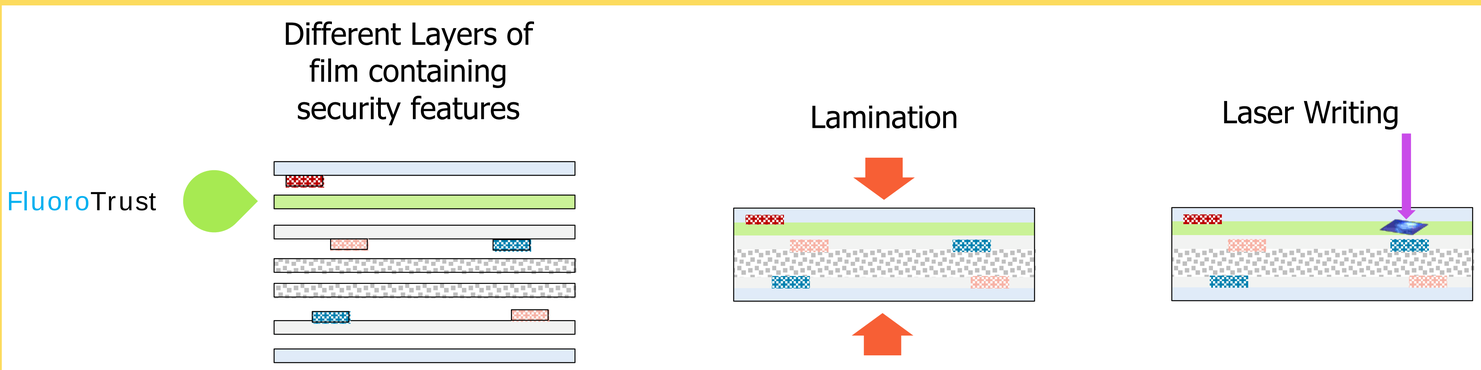
Advanced Production & Technologies

Inkless fluorescent markings to make ID documents more secure





Lamination and light activation of FluoroTrust film in ID cards



Key selling point

- ❖ Single-product level customization
- ❖ Large-area marking with micrometer resolution
- ❖ Invisible under normal lighting
- ❖ Grayscale fluorescence
- ❖ Nonremovable from surface

Technology Description

Fluorescent markings are commonly used as security features in important documents. These markings are typically made by inks with resolution limited to 100 µm. Therefore, when the volume of the information is large, it is impractical to place such security features in small areas. Moreover, the widespread availability of fluorescent inks opens the way for counterfeiters to replicate the security features.

We developed a process to make fluorescent markings in a polymer film by a light-assisted process. We make proprietary polymer film that is light-sensitive. Then, fluorescent patterns can be created at will by exposing the film to UV light. As the resolution is limited by light, fluorescent markings as small as 200 nm can be fabricated.

Intellectual Property Rights

Two patent applications have been filed in 2019 and 2020 to protect the above technique.

Team

Jussi Hänninen, MSc
Chief Executive Officer

Mohsen Hayeri, MBA
Chief Commercialization Officer

Martti Leino, MSc
Student
Optical Engineer

Mohammad Bitarafan, PhD
Chief Technology Officer

Current State

We have demonstrated that our film can be laminated in standard polycarbonate-based identity cards. We have also shown light activation of fluorescent markings of the laminated film. Currently, we are developing industrial-scale manufacturing of our film. Current TRL level is estimated at 4-5 and expected to increase to 6-7 within one year.

Business opportunity and Call to action

We are preparing to spin out from the university, seeking about 600 k€ funding for the first year to support finalizing our R&D work with the current partners, developing sales and distribution channels, feasibility studies, and R&D for applying our markings to other products, and for strategic marketing.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

Tampere University

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A1

ATTO^{3D}

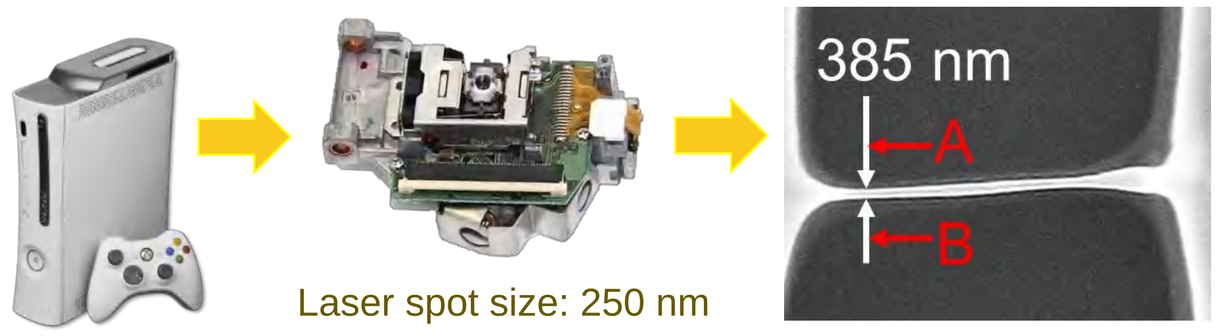
Advanced Production & Technologies

A solution for nano-resolution, large-volume & multi-material 3D printing

Resolution (nm)	**385**
Wavelength (nm)	**780/650/405**
Core component cost	**Low**
Stitching	**No need**
Multi-material printing	**Yes**
Printing volume	**cm³**
Position accuracy	**nm**
Price	**TBD**

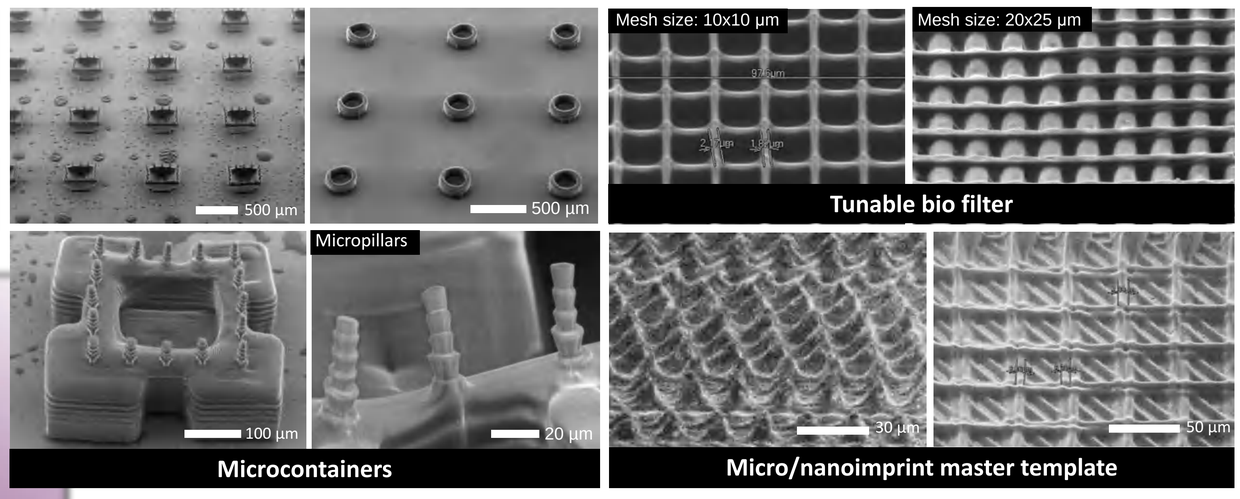
Innovationsfonden

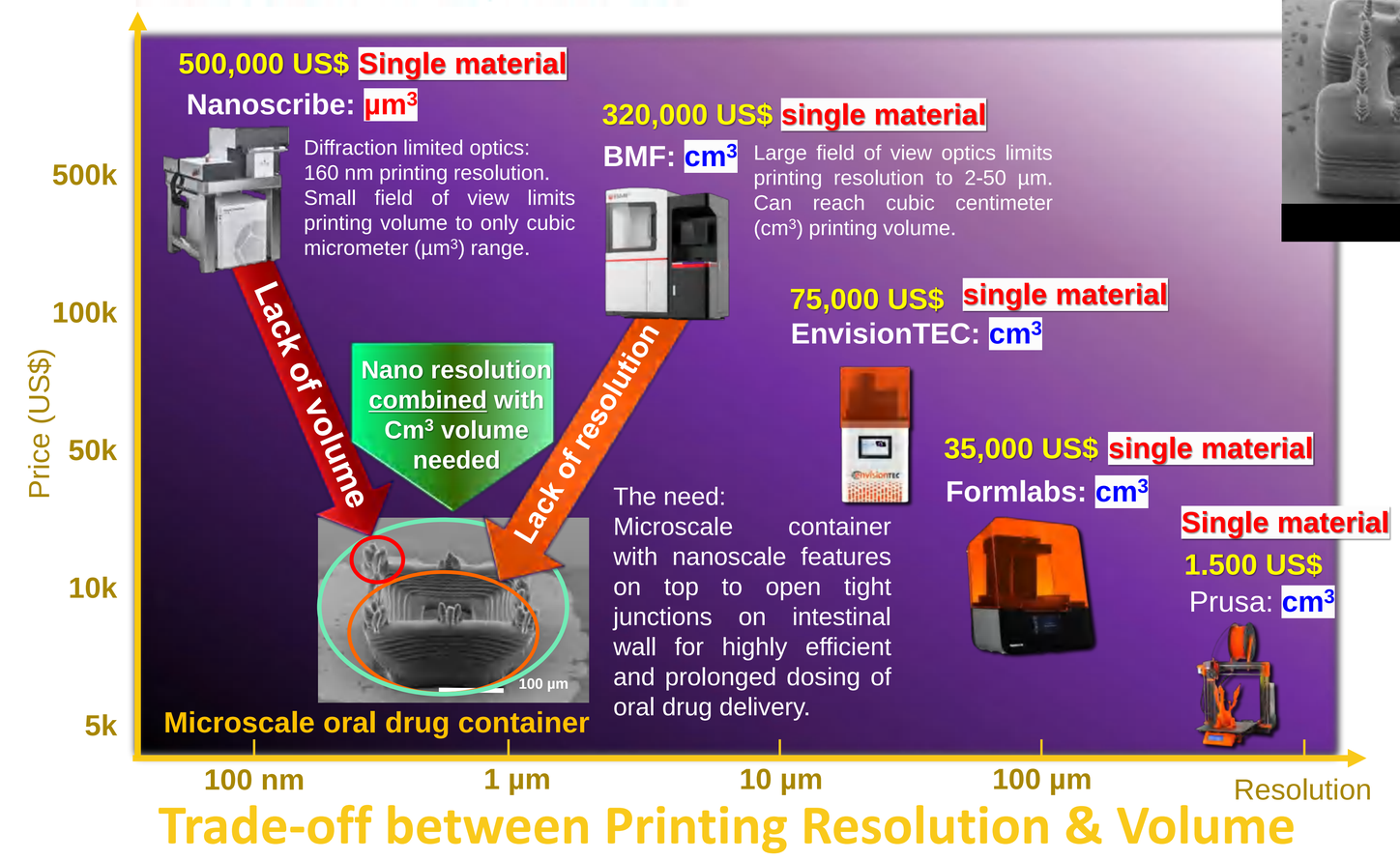
❖Nanoscale printing resolution



Laser spot size: 250 nm

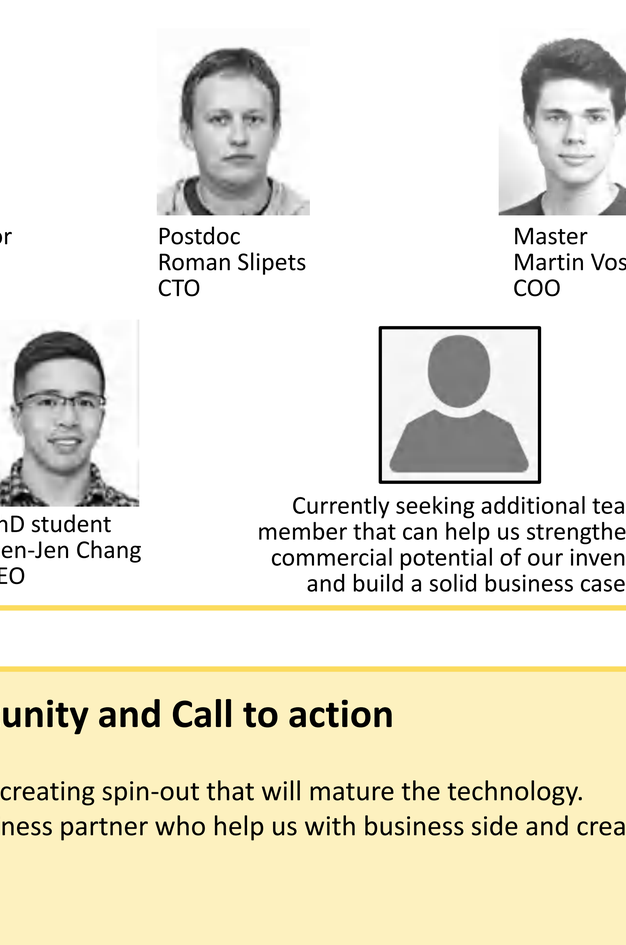
❖Cm³ Large-volume printing capacity





Trade-off between Printing Resolution & Volume

❖Multiple material printing capability



Technology Description

- **Nanoscale resolution in large printing volume**
  Bridging micro-objects, nano-features and large-volume/-area printing in single 3D printer. Replacing expensive cleanroom process for large area micro/nanoscale (e.g., Micro/nano electromechanical systems) manufacturing.
- **405/650/780 nm multi-wavelength laser output**
  Enables wide range of material choices. While 3D printing materials contain living cells, 780 nm laser can eliminate phototoxicity (by UV laser) that causes cell damage.
- **Multi-material printing**
  Opens new functionalities to high-resolution 3D printed objects for nano/microrobotics, controlled oral/transdermal drug release, 3D circuit board printing and more applications.

Intellectual Property Rights

- **First EU patent filed**
  Filing date: 4th March 2021 (Ref. No.21160737.9)
- **The first patent protects**
  3D and large-volume printing by actuating “complete optics” in a long traveling range.
- **Second patent application in progress**
  Multi-material 3D printing method implements another “unorthodox” concept that smears different materials layer by layer. The second patent is estimated to file before commercialization.

Team

Associate Professor
En-Te Hwu
CSO

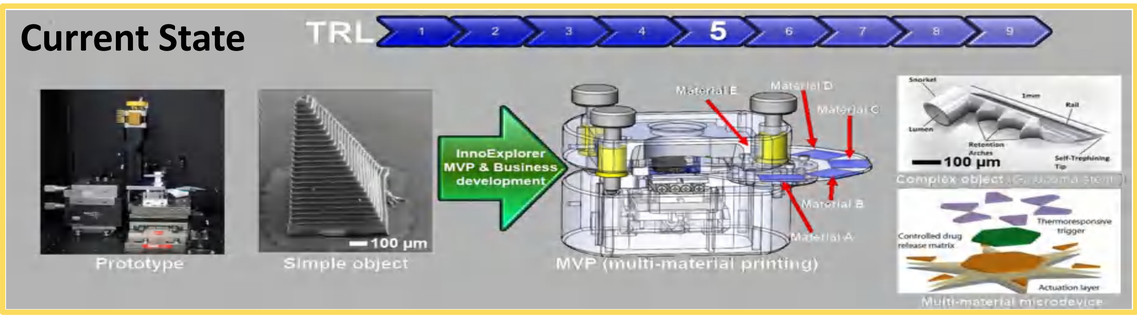
Postdoc
Roman Slipets
CTO

Master
Martin Voss
COO

PhD student
Tien-Jen Chang
CEO

Currently seeking additional team member that can help us strengthen the commercial potential of our invention and build a solid business case.

Current State



Business opportunity and Call to action

Business opportunity - creating spin-out that will mature the technology.
We are looking for business partner who help us with business side and create the of market penetration strategy.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

DTU Technical University of Denmark

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tomorrow

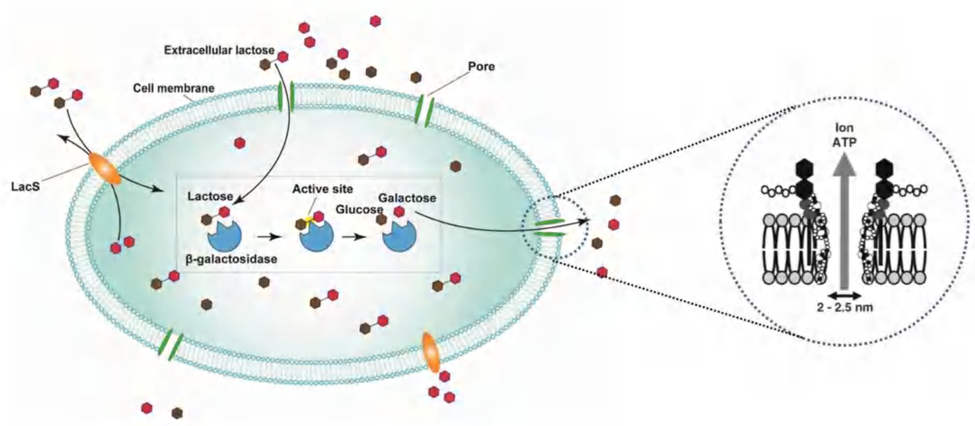
Advanced Production & Technologies

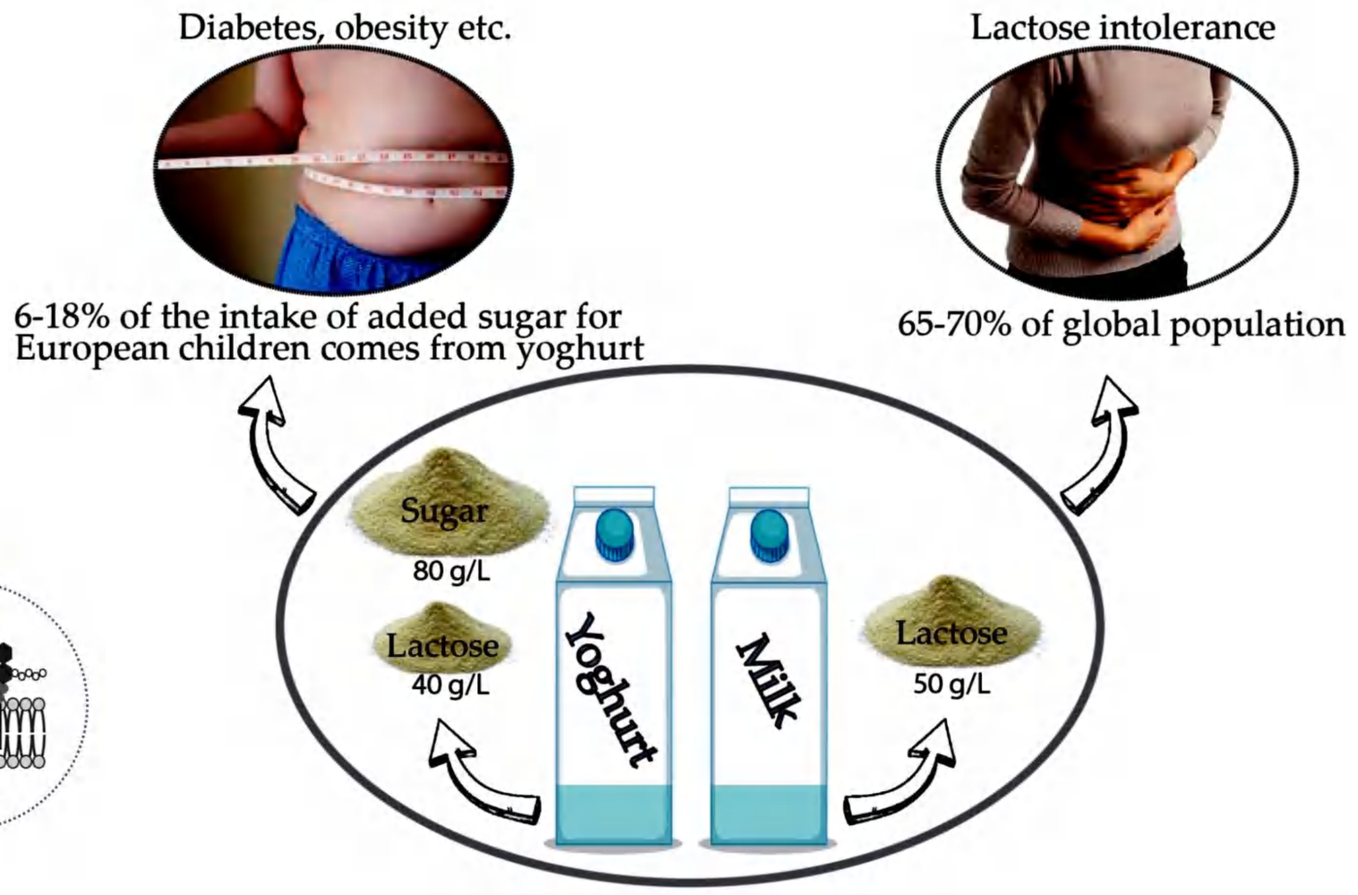
Tomorrow's lactase based on Lactic Acid Bacteria

A natural, cost-efficient and more sustainable alternative to purified lactase enzymes

Background: Lactose is a non-sweet sugar found in milk, which 70% of the world's population tolerate poorly!

Current solution is to remove lactose using *lactase enzymes,* which hydrolyze lactose into the two sugars galactose + glucose





Lactase treatment not only removes lactose, but also increases sweetness, which is beneficial in yoghurt as the need for added sugar is reduced.

Technology Description

Lactase enzymes are used for making lactose reduced dairy products, for which the demand is high. Almost 70% percent of the world's population tolerate lactose poorly, and most of these people avoid consuming dairy products. Milk contains important minerals, vitamins, fat and protein, and is considered nature's perfect food as it alone can sustain human life in its first critical months.

We have developed a natural alternative to the commercially available purified lactase enzymes currently used to remove lactose in dairy products: permeabilized lactic acid bacteria (LAB). Many LAB contain lactase enzymes, however, in order for the lactase to act on lactose in milk, small holes need to be introduced in their cell membrane. We are in the process of patenting a natural and efficient method for the latter.

Intellectual Property Rights

PCT/EP2021/053505 - Guardian IP Consulting I/S - Nisin-permeabilized microbial cell catalysts
The Technical University of Denmark

Team

Associate Professor
Christian Solem
DTU National Food Institute

Senior Business Developer
Peter Conrad Ottesen
DTU Tech transfer

Current State

The product, which is a method for permeabilizing LAB & optimized LAB with high lactase activity, is in the process of being tested at a Danish dairy, and in principle is ready for the market.

Business opportunity and Call to action

We are currently looking for possible commercialization partners and/or investors who can help us produce and market the LAB cultures the solution is based on. Tomorrow lactase is our first product but we expect to add several other product candidates to our portfolio.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

DTU Technical University of Denmark

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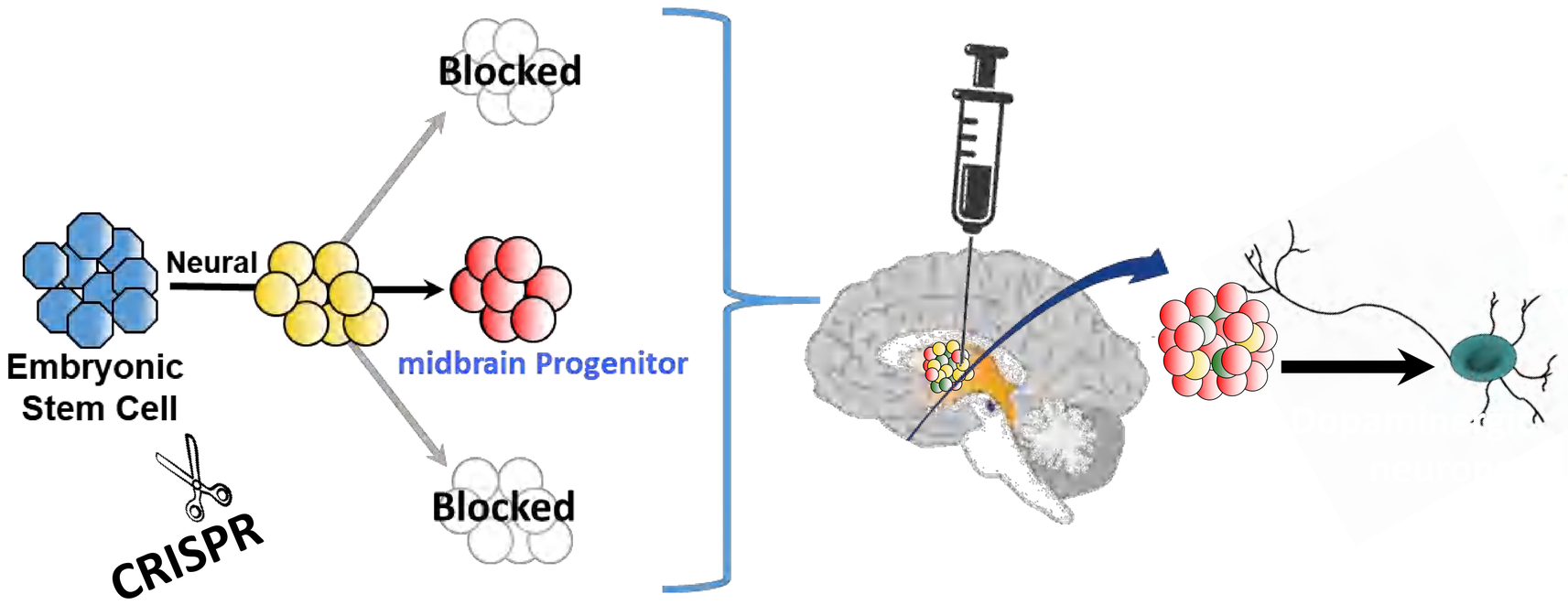
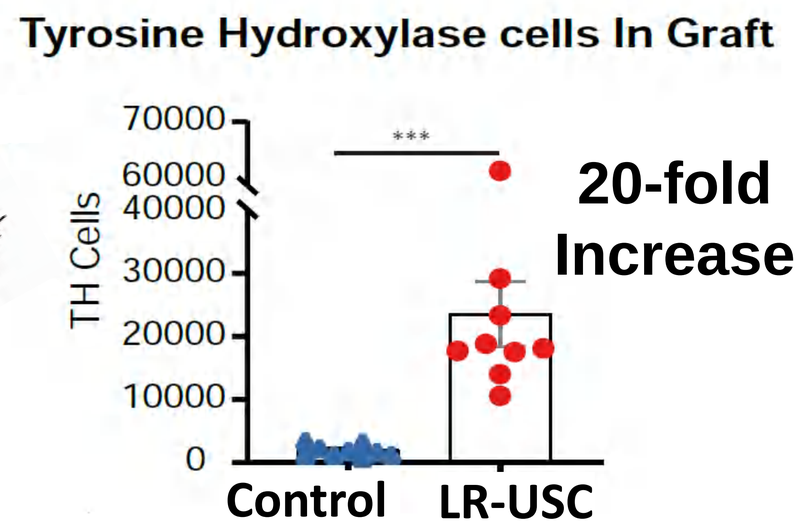
A Novel Stem Cell Therapy for Parkinson's Disease

Biotech & Pharma

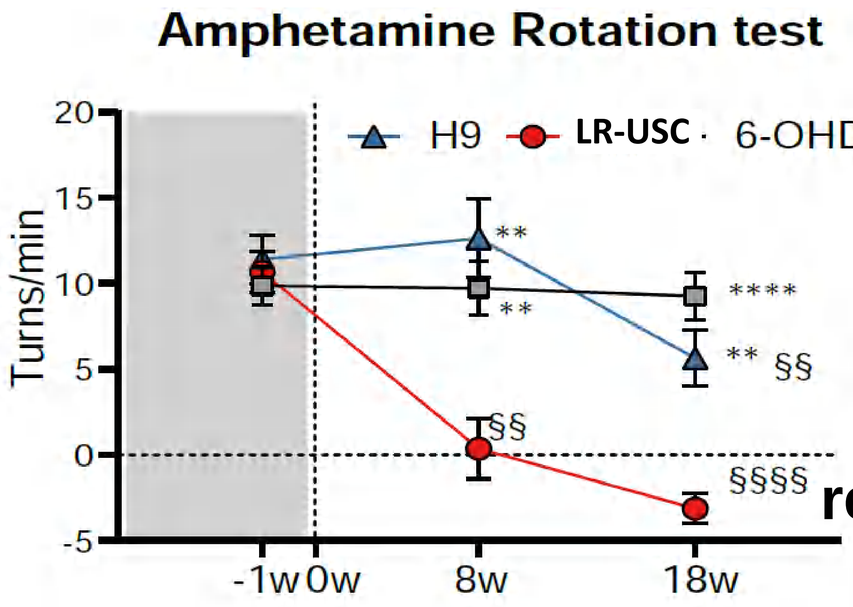
Controlling Stem Cell Differentiation with Lineage-Restricted Stem Cells

Lineage-Restricted Stem Cells:

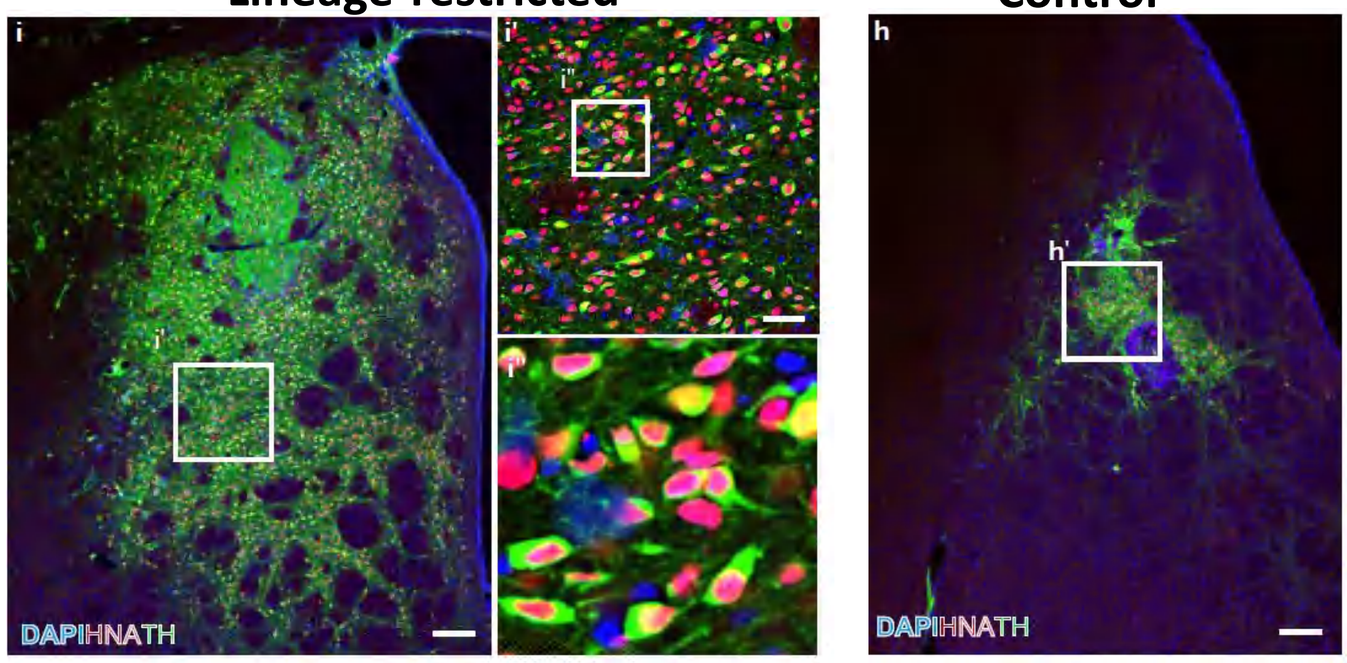




In vivo transplantation results:



Rapid recovery!



Technology Description

Unmet need: Current stem cell methods only produce 5% of dopaminergic neurons after transplantation.

RISKS with current methods: Uncontrolled growth of unwanted cells in the brain
Dyskinesia from serotonergic neurons
Batch to batch variability.

We created lineage-restricted undifferentiated stem cells (LR-USCs) that efficiently make dopaminergic neurons. We genetically modified human pluripotent stem cells and knocked out genes critical for their differentiation to undesirable cell types, thus they efficiently make dopaminergic neurons.

Lineage-restricted stem cells: reduce these risks and have higher efficiency, reproducibility and scalability

LR-USCs are ideal for use in a cell replacement therapy for Parkinson's disease.

LR-USCs can be engineered to generate other cell types for other diseases.

Intellectual Property Rights

Patent application has been filed in December 2020.

Team

Assoc. Prof.
Mark Denham

Assist. Prof.
Muwan Chen

Current State

in vivo experiments have been performed and key results are shown above.

We are looking for additional funding to further develop the technology and to perform additional benchmarking studies.

Business opportunity and Call to action

We are looking to create spin-out and continue developing the technology and perform further benchmarking studies.

We are looking for investors to help establish the business.

Additionally, we are looking for people to perform regulatory analysis.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

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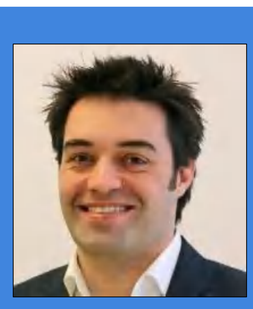


Platinum/Rare Earth Nano-alloy

Sustainability

A super-active and durable catalyst for fuel cells

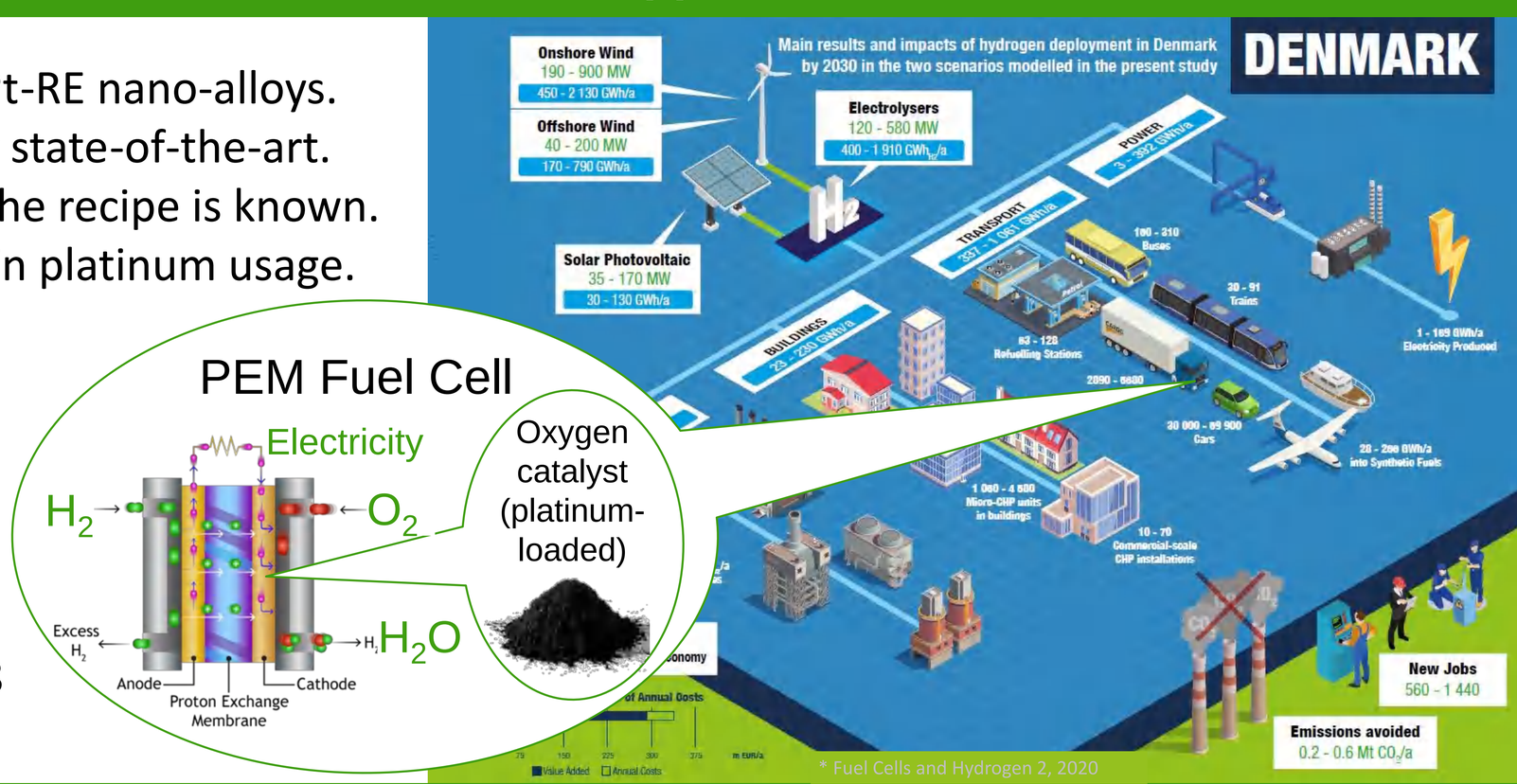
Key selling points

We have developed a method to produce Pt-RE nano-alloys.
A super-active and durable catalyst beating state-of-the-art.
The method is simple and scalable – once the recipe is known.
With 3x activity we achieve a 3x reduction in platinum usage.

The method is proven for multiple alloys
- usable for other clean energy applications

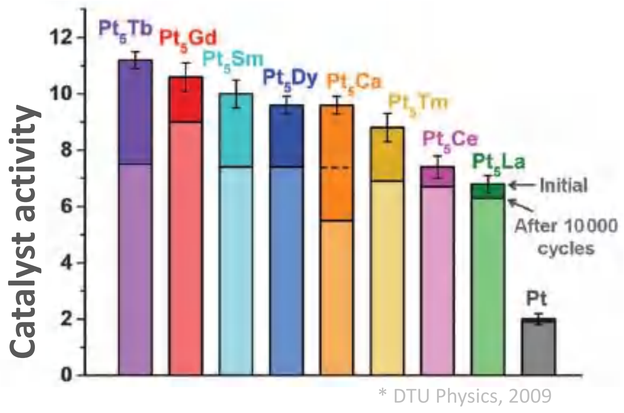
Fuel cells are on a steep growth curve.
+50,000 fuel cells shipped 2020 (> 1 GW)
Forecast to grow 5-10 times from ‘21 to ’28

Field of application – P2X / X2P



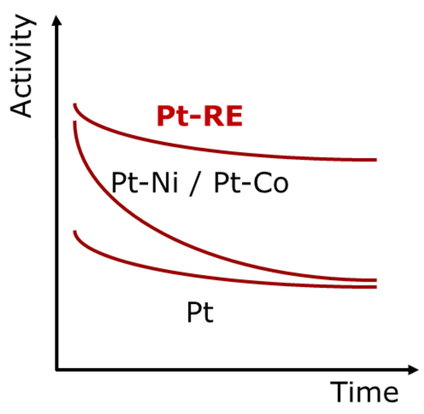
Super-active and durable

Platinum – Rare Earth vs. pure Platinum



* DTU Physics, 2009

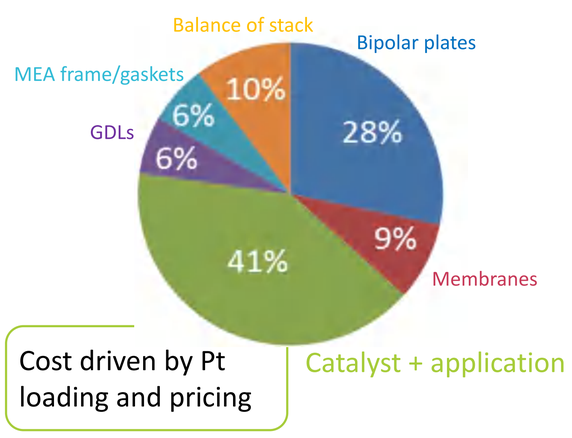
Platinum – Rare Earth vs. state-of-the-art catalyst



Cost savings

Cost breakdown for Fuel Cell stack

New catalyst: 28% savings on fuel cell stack



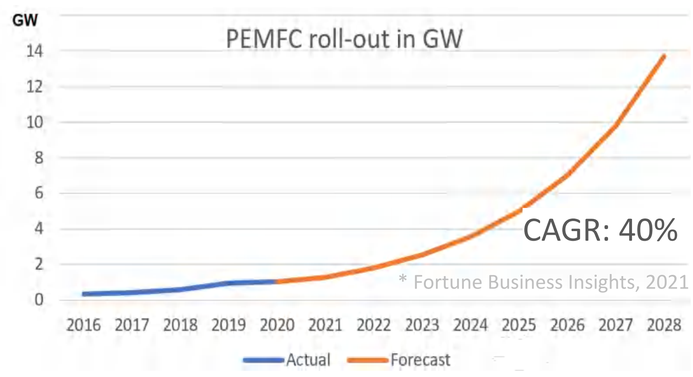
Cost driven by Pt loading and pricing

Catalyst + application

Fuel cells on the rise

Actual and forecast shipment of fuel cells

Forecast to grow 5-10 times from ’21 to ’28



* Fortune Business Insights, 2021

Technology Description

Platinum is the optimal catalyst for oxygen ionization. Platinum is, however, scarce and with rising demands, price is going up. Hence, the search for alloys which increase the activity of the platinum has been going on for two decades. In 2009, DTU Physics demonstrated that the combination of platinum and rare earth metals show very high activity while being almost as durable at platinum alone. Unfortunately, it is very difficult to combine platinum and rare earths into an alloy. In 2018, this team at DTU Energy reached a breakthrough being able to produce the alloy in quantities of grams. The key to the method is stabilization of the RE ions. The production method is simple to perform and does not need a high purity environment. Further, it is scalable, making a production line feasible.

The method is applicable on multiple other hardly attainable high-performance alloys for the green energy industry. These opportunities will be pursued once our first product has been matured for production.

Intellectual Property Rights

DTU Patent (WO2020065005) on production method filed in 2018 – national phase from ‘21.

The team has obtained option on exclusive license for use of the IP.

Team

Entrepreneur
Christian Nielsen

Assistant Professor, PhD
Yang Hu

Professor
Jens Oluf Jensen

Professor
Qingfeng Li

Postdoc, PhD
Benedikt Axel Brandes

PhD Student
Quan Zhou

Head of Section, Associate Professor
Lars N. Cleemann

Current State

The Pt-RE alloy is in TRL4. Samples have been sent to in-system tests at our partners in the fuel cell industry. We are currently focusing on a few rare earth metals optimizing the particle sizes for the best possible performance. From there we focus on scaling the batch sizes from a few grams to 100s of grams. We expect to be in position to incorporate and start production in second half of 2022.

Business opportunity and Call to action

Our goal is to create a DTU spin-out in 2022, becoming a leading supplier – production and sales – of state-of-the-art catalysts for green energy. Our first product will be the Pt-RE nano-alloy for PEM fuel cells.

We look for sparring partners on production scaling. When approaching incorporation in 2022, we further look for investors and possibly cofounders who understand the green energy industry and markets.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

DTU

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I Tracket

Record, Replay and Re-learn with your AI coach

Digitisation, AI & Robotics

I Tracket: Our solution allows tennis players to record, replay and get an analysis of their tennis game just by using their phone, so that they can observe themselves playing, review their performance and share it with their coaches and friends.

The key benefits for our customers are:

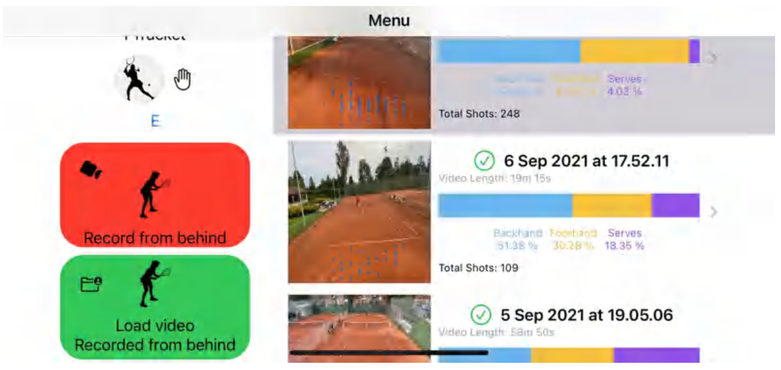
- Become aware, understand technical mistakes and progress performance.
- Recording and analyzing tennis becomes fast and convenient.
- High accessibility, thanks to the use of a mobile phone.
- Affordable price
- Feedback and social interaction through the app, will not only help to improve, but also motivate the tennis player.

Market trend: Improvement is at the core of competitive sports. In order to really improve, an athlete needs feedback. New technological systems offered by big data companies like Huld or Trackman, have provided soccer, golf and baseball with automated in-depth analysis of their performance and game statistics.

Customer need: After conducting a total of 14 in-depth interviews with tennis players, we identified the following problems:

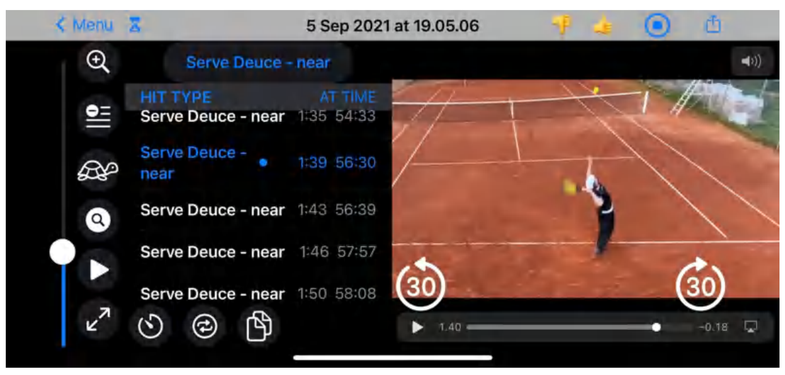
- Tennis players struggle with understanding their own mistakes since they can't observe themselves when they are performing.
- Recording tennis on the court and analyzing are time consuming and troublesome.
- Players cannot rely on coaches to get personalized feedback because the coaches' time is very limited.

Record



Replay

Re-learn

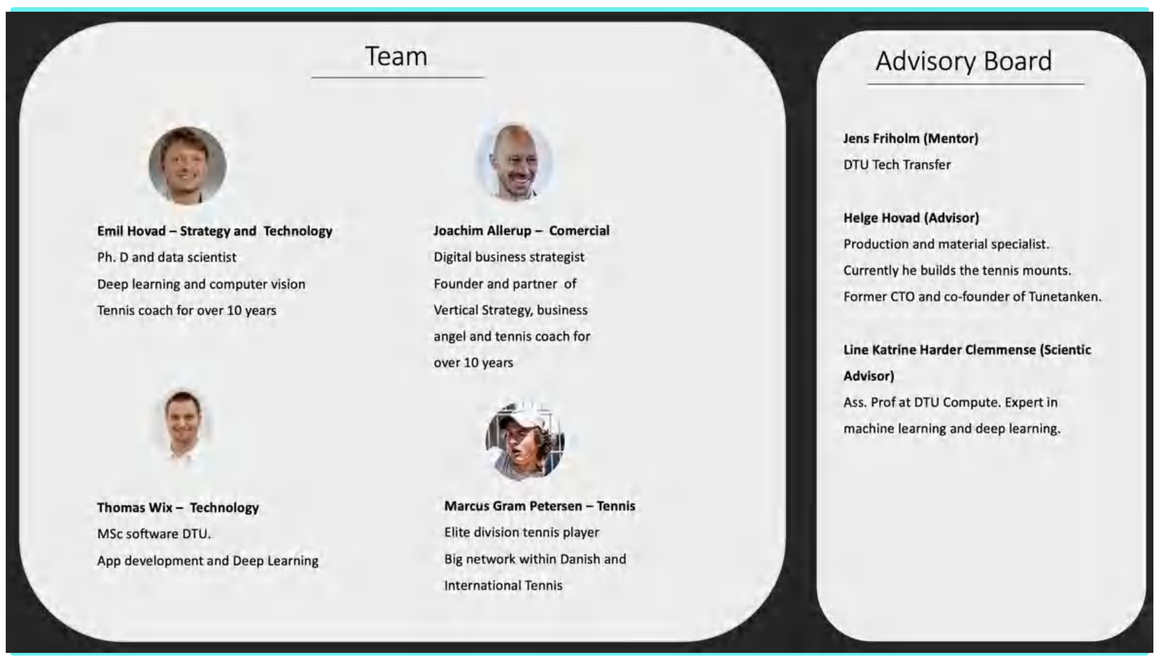


Technology Description

- Dedicated big data has been collected for the deep learning algorithm based on domain expertise with respect to tennis and deep learning (IP).
- The data has been labelled in a unique way based on domain expertise with respect to tennis and deep learning. Artificially generated labelled data is used to save time, this data was generated based on computer vision techniques (IP).
- The data is used for training the deep learning algorithm (*object detector*).
- The deep learning algorithm uses transfer learning in a unique way, based on domain expertise with respect to deep learning (IP).

Intellectual Property Rights

- Tennis mount, utility model: Our ref: BA 2021 00037
  Applicant: "I Tracket ApS", Date: 16 June 2021



Current State

A Freemium app is on app store, which has been tested throughout this summer. We plan to test the app together with Dansk Idrætsforbund (DIF) and Birkerød Tennisklub during the winter season. We additionally have a mobile phone mount permanently placed in the tennis club for a easy recording setup. We have received an InnoBooster and we will add several new exciting features to the app.

Business opportunity and Call to action

We are a spin-out created in 2021, we come from DTU compute. We look for getting in contact with an investor in potentially 4-5 months when we are ready for selling the product, after the testing period in the winter.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

DTU Link Early Impact

DTU

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The OpField

Medtech & Diagnostics

A novel, gentle and affordable treatment for bladder cancer that will reduce relapses and change bladder cancer from being the most expensive cancer disease

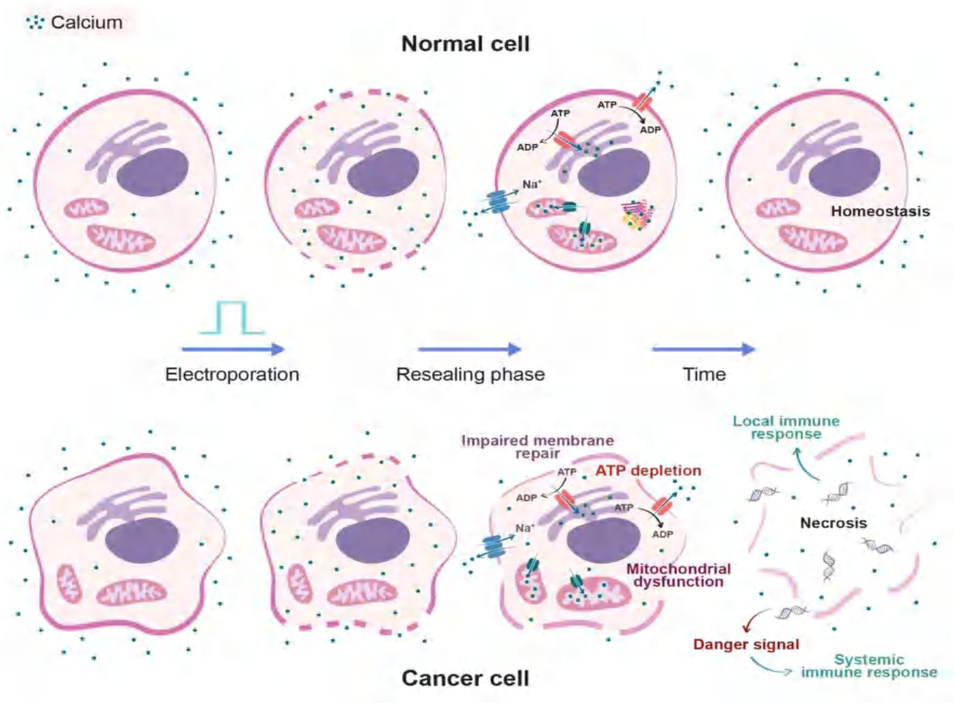


Figure 1: Mechanism of action of Calcium Electroporation. Vissing et al, BMJ Open 2021

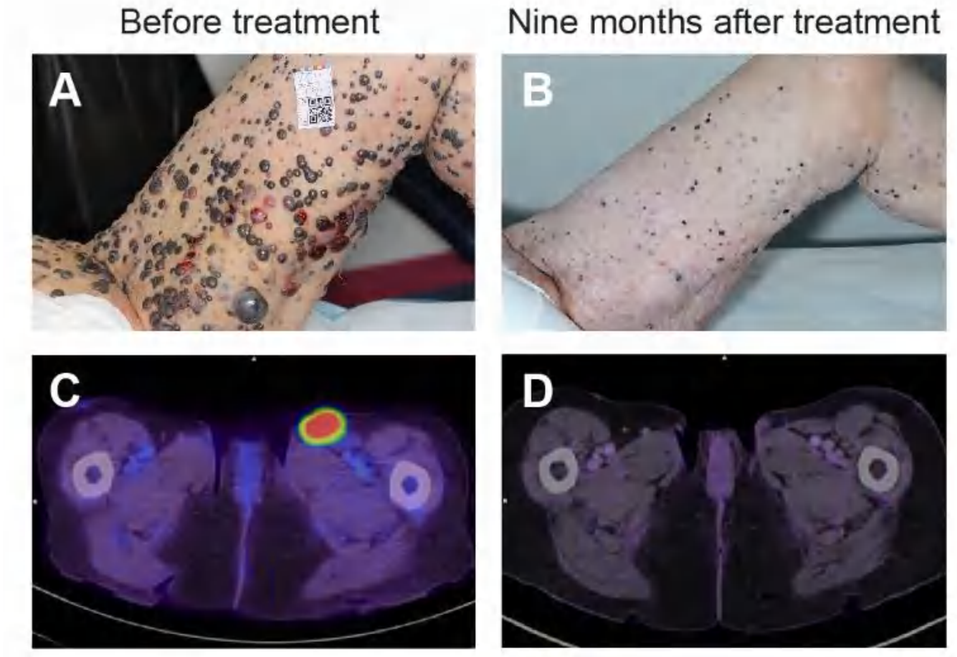


Figure 2: Example of one patient with malignant melanoma treated with Calcium Electroporation. Falk et al, Acta Oncol. 2017

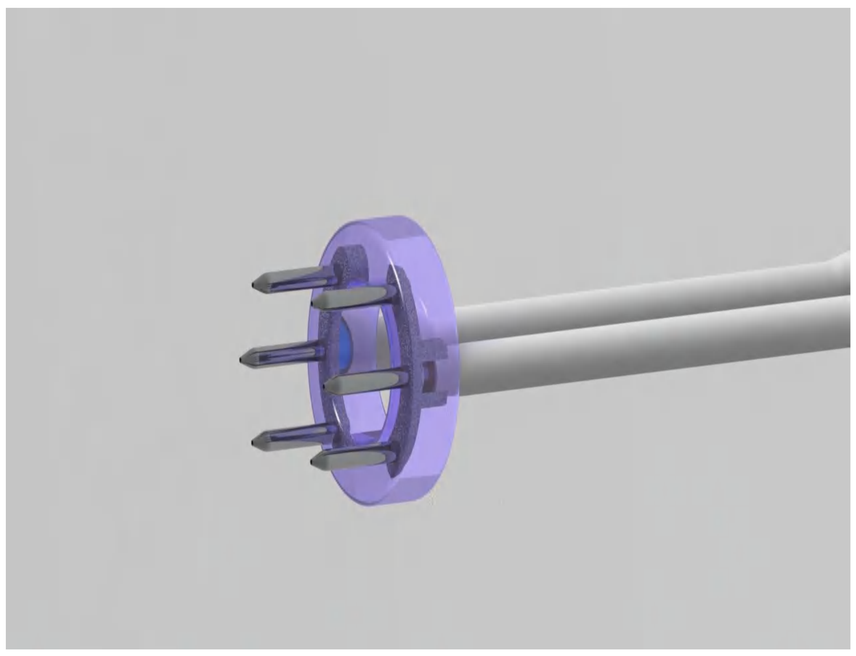


Figure 3: The OpField electrode

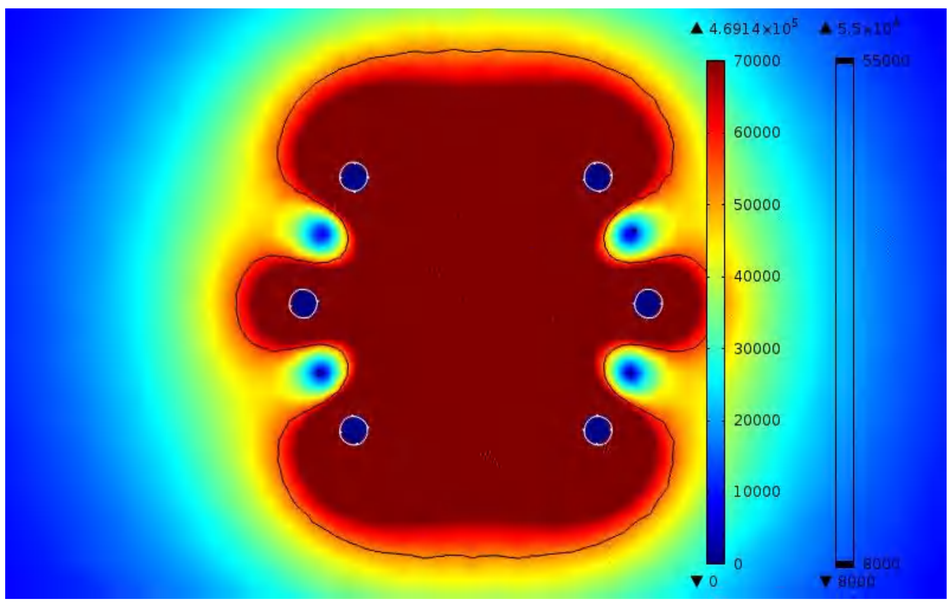


Figure 4: Electric field calculations, showing a homogeneous squared-shaped electric field generated by off-setting the middle electrodes on each side, providing optimal treatment conditions

Technology Description

Electroporation generates an electric field that makes target cells permeable for molecules (i.e. chemotherapeutics, calcium) that otherwise would not enter into the cell. Consequently, achieving higher local toxicity with less side effects, even with a single treatment. These therapies are practically effective for cancers of any type. The limitation is that specific electrodes are necessary, in order to deliver the electric pulses to the particular organ.

We have designed The OpField: a novel electrode, that (1) can be used endoscopically in the urinary bladder, fitting standard urological endoscopes, (2) generates an optimized electric field, and (3) can be operated quickly and easily, under direct visualization.

The OpField will introduce electroporation (single treatment) as a novel therapy for bladder cancer. This will potentially spare patients from multiple interventions and hospital visits, saving enormous costs for society.

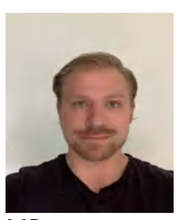
Intellectual Property Rights

Patent filed for the US and EU: US 17/290,882 and EP 19795237.7

Team

MD, PhD, Assoc. Prof
Juan Luis Vásquez

MD, Dr.M.Sc, Professor
Julie Gehl



MD
Emil Beck Mieritz

R&D Engineer, B.SC.M.E.
Tue Bjørn Fyhn

Current State

Pre-clinical studies from our research group showed the effectiveness of Calcium Electroporation on bladder cancer cell lines. Clinical studies are being conducted in our center for other cancer types. We have a prototype design (The OpField) ready to be manufactured in order to start the clinical phase on patients with bladder tumors.

Business opportunity and Call to action

We have defined a research plan and we have the facilities for running clinical trials on Calcium electroporation for bladder cancer. We are looking for a license partner or/and a collaboration regarding the manufacture of the prototypes for the clinical trials.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

REGION H
The Capital Region of Denmark

Contact information
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Senior Executive Advisor
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E-mail: niels.henrik.clausen@regionh.dk

Enterocalm

A novel treatment for ulcerative colitis

Biotech & Pharma

VALUE PROPOSITION

Enterocalm is:

- Without side effects
- Price competitive
- Administered at home once a day

Competing drugs are:

- With side effects
- Some very expensive
- Some administered intravenously

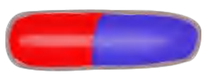
COST STRUCTURE

Variable costs:

- License fee
- Insulin, sodium chloride, bottles
- Other production costs (wages, electricity)

Fixed costs

- R&D
- Administration
- Sales and marketing



BUSINESS MODEL

Approved, GMP human insulin and sodium chloride solution will be purchased from a pharmaceutical manufacturer.

Polyethylene enema bottles will be purchased from a GMP plastic manufacturer.

Enterocalm will be assembled from the GMP products at Enterotarget's factory facilities and delivered to patients via distributors and pharmacies.

One daily dose 100 mL rectal insulin solution
Sales price 4,2 EUR
Gross Profit Margin 2027: 69%
Net Profit Margin 2027: -5%
Net profit Margin 2030: 37%.

Milestones

Primo 2023
Interim analysis of Phase II clinical trial

Primo 2024
Phase II finalized. 4 staff and relocation to own office space

Primo 2026
Phase III finalized, 15 staff, production, approval

Primo 2027
Marketing in EU

Technology Description

Ulcerative colitis is an incurable chronic inflammatory bowel disease targeting the large intestine (the colon). 0.3 % of the population in developed countries suffer from ulcerative colitis. Our invention, **Enterocalm**, is the treatment of ulcerative colitis based on the wound-healing properties of insulin.

MOA: Insulin targets the epithelial cells and induce an antioxidant protein.

Enterocalm is delivered into the large intestine either as an enema (to market in 2027) or as orally ingested capsules (to market in 2029) which releases insulin once they reach the large intestine.

Intellectual Property Rights

Enterocalm is based on the invention "Rectal insulin for treatment of inflammatory bowel disease" WO 2018/087298 A1. The patent is owned by UCPH and Enterotarget ApS holds a license to the exclusive rights.
The patent is granted by EPO and validated in 15 European countries. Applications are pending in the US and Canada

Team

CEO
Jørgen Olsen
Enterotarget ApS

Chairman
Jesper T. Troelsen
Enterotarget ApS

Board member
Mohammad Yassin
Enterotarget ApS

Aalborg, Denmark

Scientific advisor
Clinical collaborator
Lars Vinter-Jensen

Copenhagen, Denmark

Scientific advisor
Clinical collaborator
Ida Vind

Zürich, Switzerland

Scientific advisor
Clinical collaborator
Gerhard Rogler

Current State

- Proof of concept has been obtained in a mouse model.
- MOA has been established in a cellular model.
- EPO patent has been grated
- A phase I clinical trial has been initiated.

Business opportunity and Call to action

Primo 2022
Seed: 0,27M EUR
Goal: Phase II clinical trial to interim analysis
Requirement: The Seed investor actively supports the team
ROI - Estimated net present value: Three fold at 25% return rate (2022-2030)

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

Contact information
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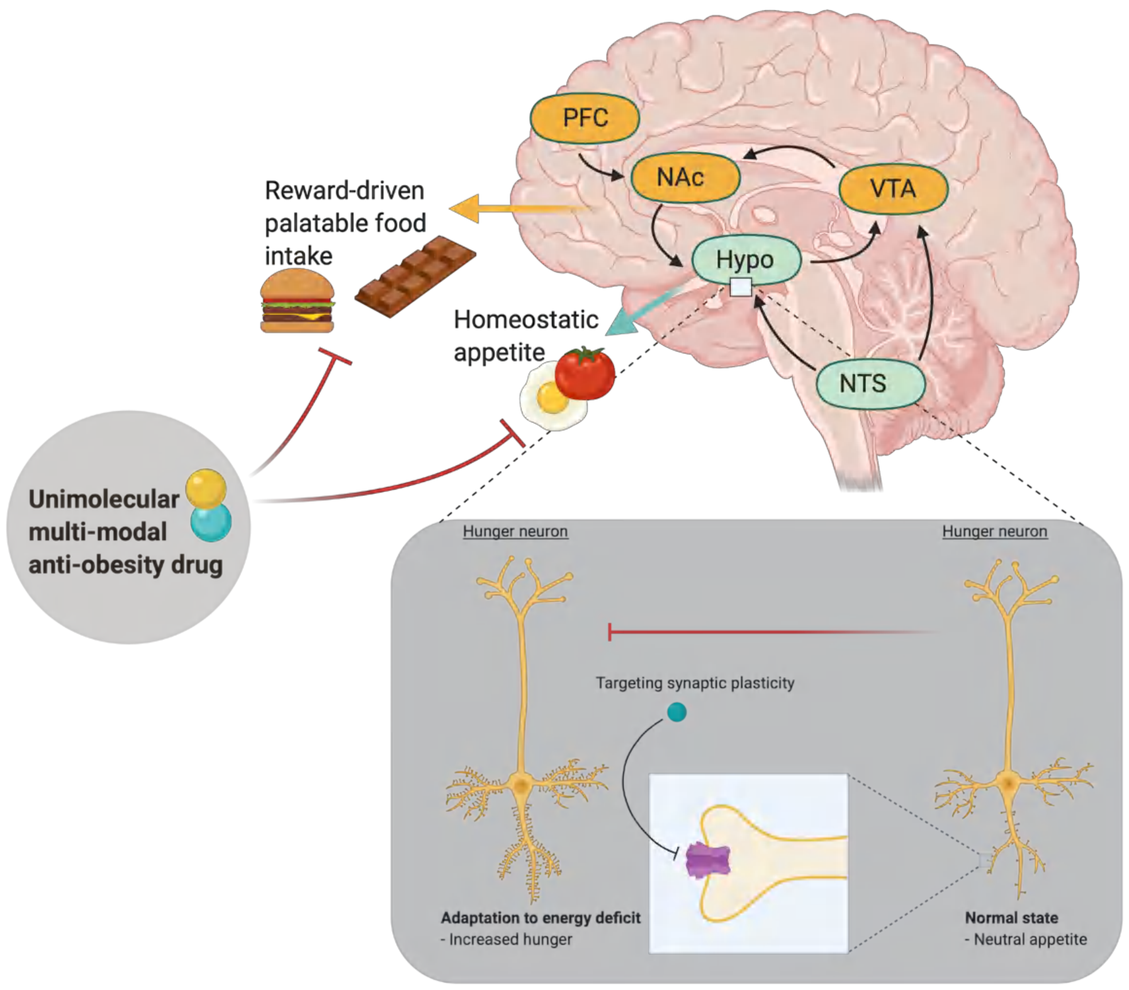
A new anti-obesity drug candidate

First-in-class conjugate molecule that targets synaptic plasticity to deliver a sustained weight loss

Biotech & Pharma

KØBENHAVNS UNIVERSITET

Novel mode of action



Unparalleled weight loss efficacy

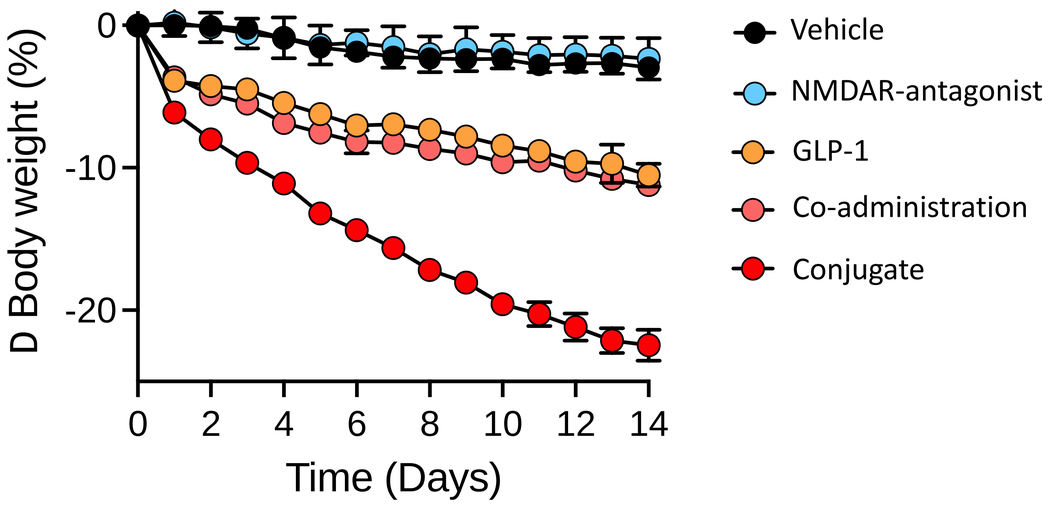
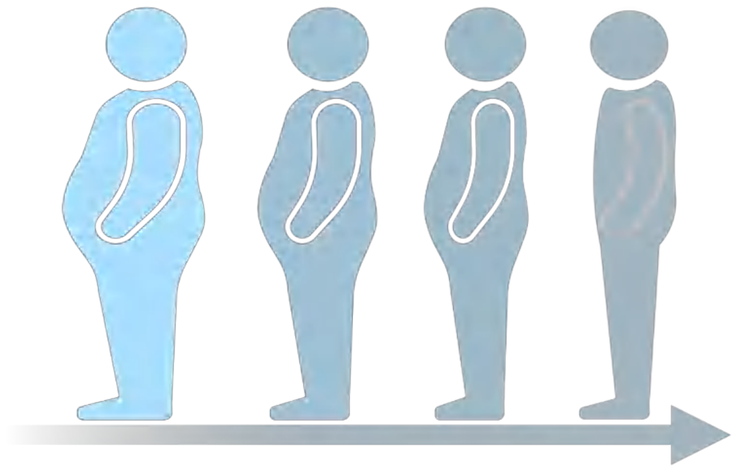


Figure
Diet-induced obese mice were treated daily by subcutaneous injections with either vehicle, an NMDA receptor (NMDAR) antagonist, a GLP-1 analogue, co-administration or the conjugate drug. N=8 mice/group. Data represent means ± SEM.

Therapeutic concept and market outlook

- First-in-class peptide-directed inhibition of a ligand-gated ion channel
- Extensive pre-clinical studies confirm weight loss efficacy in animal models of diet-induced obesity and genetic obesity
- Estimates suggest that < 5% of adults with obesity are treated with drugs
- Prescriptions are rapidly growing. Estimated market value is 20bn (2026)



Technology Description

To safely harvest the appetite-modulating effect of N-methyl D-aspartate receptor (NMDAR) antagonism, we have developed a first-in-class therapeutic concept, in which peptide conjugation is exploited to selectively target NMDAR antagonists exclusively to CNS feeding regions via GLP-1. Thus, our strategy harvests all the virtues of GLP-1 receptor agonism and at the same time – like a Trojan horse – delivers potent site-directed inhibition of NMDAR signalling via small molecule targeting

The optimized lead compound, a GLP1R agonist/NMDAR antagonist, is a first-in-class dual acting GPCR/ion channel conjugate, with superior weight loss efficacy in obese rodents. The compound has a unique mode-of-action and is deficient of classical adverse behavioural effects of NMDAR antagonism.

Intellectual Property Rights

PCT/EP2021/064930, “GLP1R agonist-NMDAR antagonist conjugates”, filed June 2021

Team

Associate Professor
Christoffer Clemmensen
Future role: CEO/CSO

Research Consultant
Anders Bue Klein
Future role: Director of Biology

PhD student
Jonas Odgaard Petersen
Future role: Director of Chemistry

Current State

We have demonstrated excellent efficacy in multiple animal models of common and genetic variants of obesity. In addition, we are currently performing pharmacokinetic and biodistribution studies before acquiring independent toxicity studies (We have encouraging preliminary safety data from in-house experiments). Our ambition is to reach a clinical phase 1b trial in 2023.

Current TRL level is 5/6.

Business opportunity and Call to action

In addition to the Team, a series of highly experienced project advisors and collaborators with entrepreneurial experience are connected to the project and support the ongoing ambition to progress our lead candidate into clinical trials. Following completion of our on-going pre-clinical program (enabled by competitive seed funding from the BioInnovation Institute), a spin-out company will be created (anticipated: Q1-2022). Toward this end, we will be looking to expand out team with business development and clinical development professionals and to attract investors to financially enable the transition to clinical testing.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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Commercial Officer
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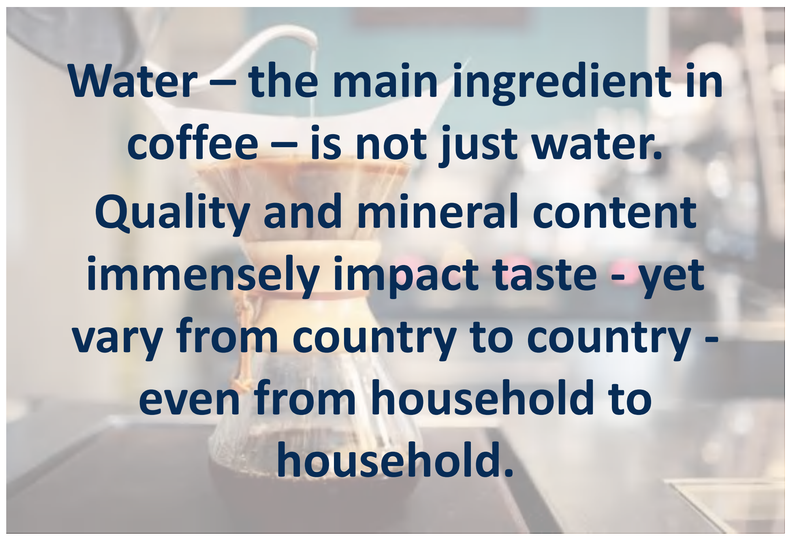
DesignWater

Functional Water for Better Coffee

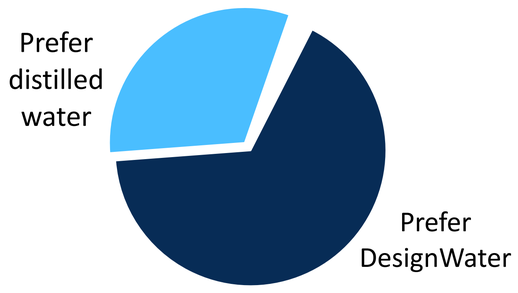
DesignWATER

Sustainability

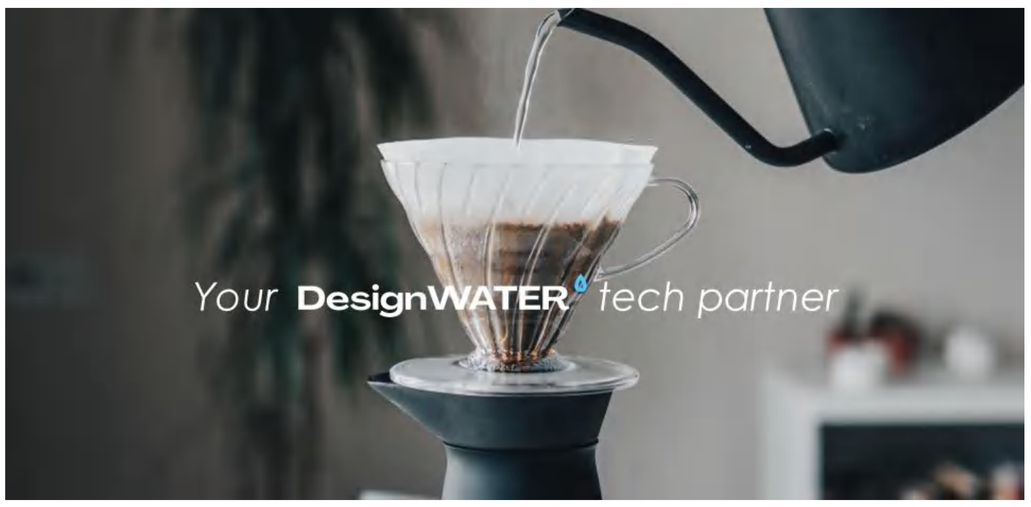
Tapping into the global coffee trend.



Water developed in cooperation with the University of Copenhagen **optimizes and enhances the taste of coffee** and **minimizes lime scale and corrosion** of brewing equipment.
Scientifically proven and tested by a trained sensory panel.



DesignWATER



Leading tech company – leverage via partnerships

Coffee and equipment vendors

- Exclusive or non-exclusive industry rights to coffee water
- We deliver technology; a custom 'mix' for general or specific coffee offerings
- KU & DesignWater ApS own processing, formulation and IP

Industry partners

Horeca, Retail and eCommerce (B2B/B2C)

- Exclusive rights to sell customized 'mixes' for specific coffee offerings through one or more channels or markets
- We deliver the technology and the 'mix'
- KU & DesignWater ApS own processing, formulation and IP

Channel partners

Other business models or 'beverages'

- Rights to other business models and other beverages, e.g.:
  - ✓Tea
  - ✓Ice cubes
  - ✓Cocktails (on draft)
  - ✓Anything where quality of water is of essence…

Other partners

Technology Description

Coffee is 98% water of varying quality. We have invented a water/mineral composition, which ensures consistent and optimal coffee taste and at the same time with a focus on sustainability and equipment protection.
A team of coffee experts and researchers at the University of Copenhagen has worked on this project for 4 years with support from the Innovation Fund Denmark.
In consumer blind tasting, 7 out of 10 test persons preferred coffee brewed with DesignWater™. The invention has been found patentable by independent patent experts.
DesignWater ApS strategy is to be a leading tech partner to sub-license the invention to major coffee companies and subsequently to other beverages companies.

Intellectual Property Rights

PATENT PENDING

European patent application has been filed on 16th July 2021.
No.: 21186014.3. - Entitled: Design water for coffee.
The patent rights are jointly owned by the University of Copenhagen and DesignWater ApS. DesignWater ApS and University of Copenhagen entered an exclusive worldwide license for any use of the patent rights.

Team

Bent Porsborg
Partner

Kenneth P. Luciani
Partner

Professor
Henrik G. Kjærgaard
Partner

Zeina Maroun
Project manager

Current State

- Water recipe invented, tested and patent application filed.
- Optimal production methods under development.
- Sub-license partnerships being explored.

Business opportunity and Call to action

DesignWater ApS is seeking financial and strategic partners to unleash the potential of the invention within the immense and growing institutional and consumer quality coffee market.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

Contact information
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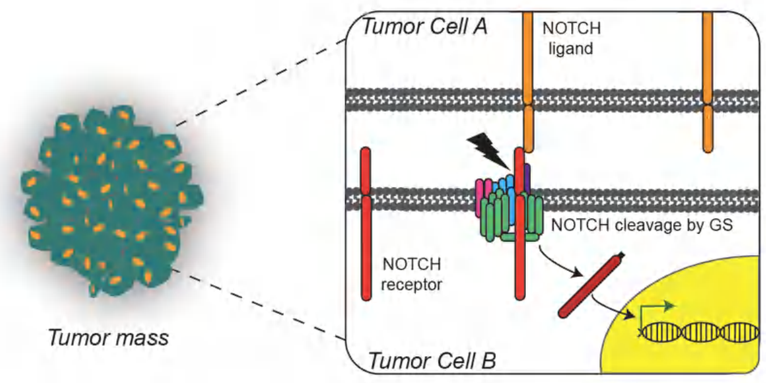
To determine gamma-secretase inhibitor (GSi) responder patients pan-cancer

Medtech & Diagnostics

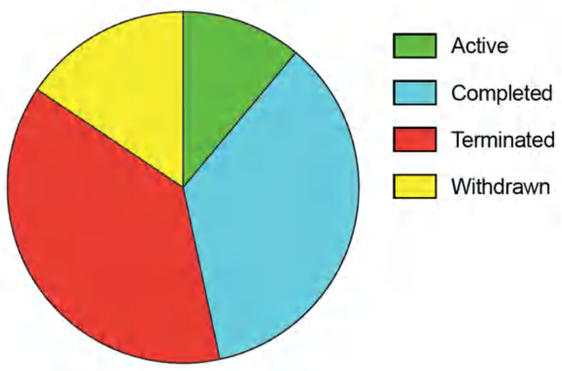
A pan-cancer gene expression panel which can predict the sensitivity of cancer patient to multiple types of GSi compounds

The Challenge

- Oncogenic NOTCH pathway activation occurs in many cancer types, driving aggressive tumor behavior and poor patient outcome

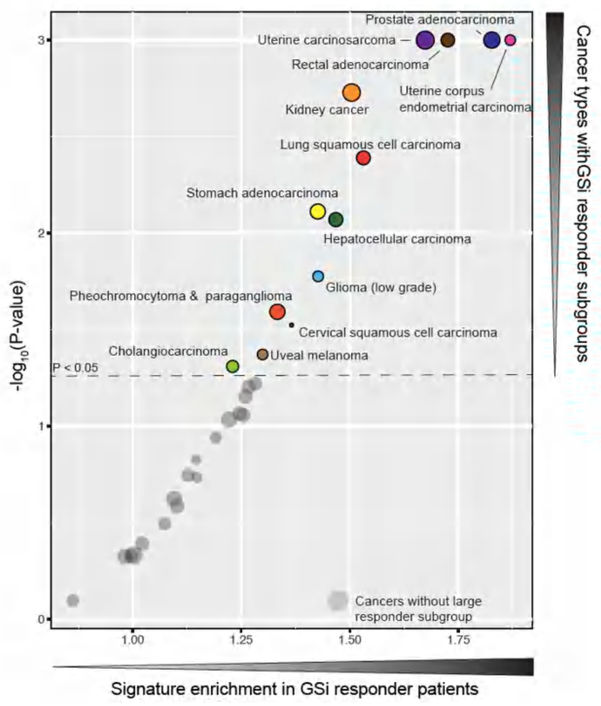


- NOTCH signaling can be inhibited by gamma-secretase inhibitors (GSi) but clinical trial termination rates are very high due to off-target toxicities in a subgroup of patients. Robust molecular tools to enable responder patient selection for inclusion in GSi trials are needed

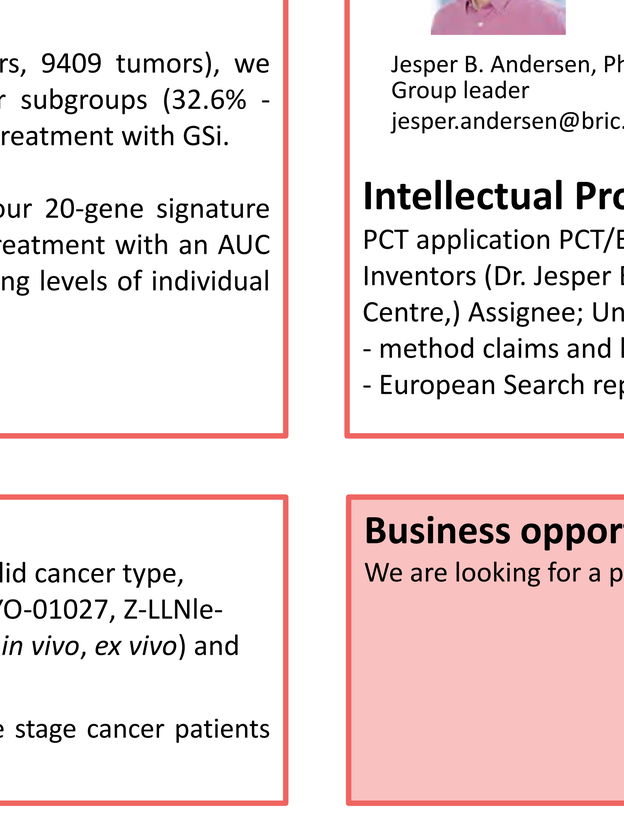


The Solution

- Our GSi sensitivity signature predicts large patient responder subgroups across multiple cancer types

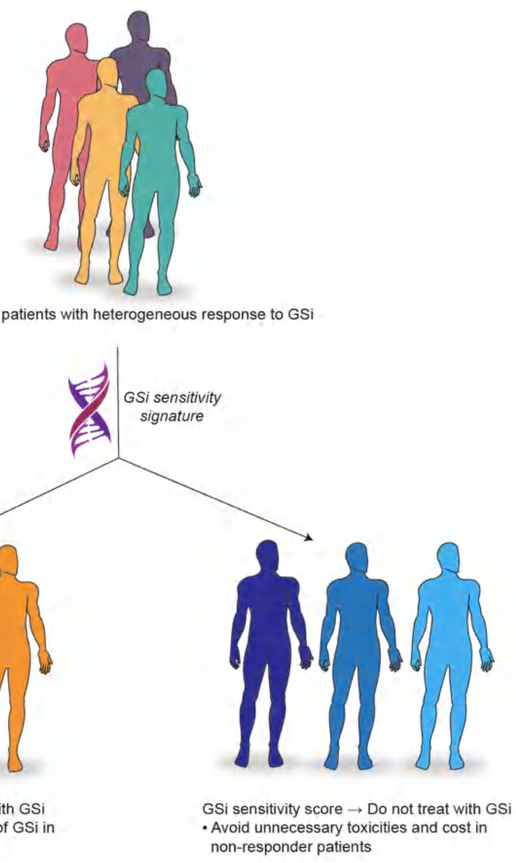


- Our GSi sensitivity signature significantly outperforms measurements of target pathway expression in classifying sensitivity of cell lines to these drugs



The Impact

- Our GSi sensitivity signature can be exploited to select high-confidence responder patients for treatment with GSi



- **clinical development tool for GSi**
- **specific theranostic tool for personalised treatment strategies**

Technology Description

Initially developed through analysis of bile duct cancers (O'Rourke et al. Hepatology 2020), we identified a transcriptomic signature capable of identifying GSi-sensitive versus GSi-resistant tumors.

By evaluating our GSi sensitivity signature pan-cancer (31 cancers, 9409 tumors), we predicted 41.9% of cancers to have large prospective responder subgroups (32.6% - 59.6% patients within a given cancer type) who many benefit from treatment with GSi.

In GSi-treatment screening of 60 diverse solid cancer cell lines, our 20-gene signature could discriminate nanomolar from micromolar sensitivity to GSi treatment with an AUC of 1, significantly outperforming the predictive capacity of measuring levels of individual NOTCH signalling genes.

Team

Jesper B. Andersen, PhD
Group leader
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Colm J. O'Rourke, PhD
Assistant Professor

Dan Høgdall MD PhD
Oncologist

Intellectual Property Rights

PCT application PCT/EP2020/059091 was filed 1st April 2020
Inventors (Dr. Jesper B. Andersen, Dr. Colm J. O'Rourke, Biotech Research and Innovation Centre,) Assignee; University of Copenhagen)
- method claims and kits/product
- European Search report positive for claims claiming use of three or more genes of panel

Current State

Theranostic assay has shown predictive potential independent of solid cancer type, NOTCH mutational status and specific GSi compound (RO4929097, YO-01027, Z-LLNle-CHO). Signature has been optimized across diverse models (*in vitro*, *in vivo*, *ex vivo*) and technologies (gene expression array, RNA sequencing).

Next steps Validation of panel in small group of GSI-treated late stage cancer patients currently; and Development of a signature-specific assay.

Business opportunity and Call to action

We are looking for a potential licensee.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

Contact information
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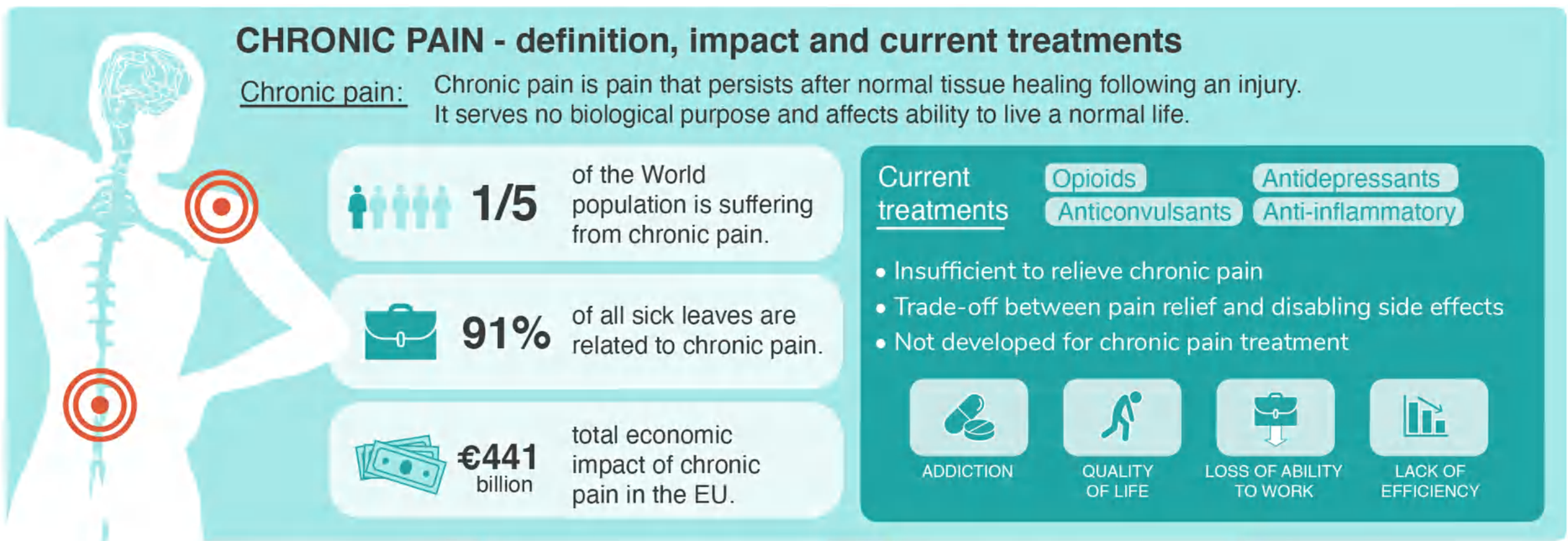
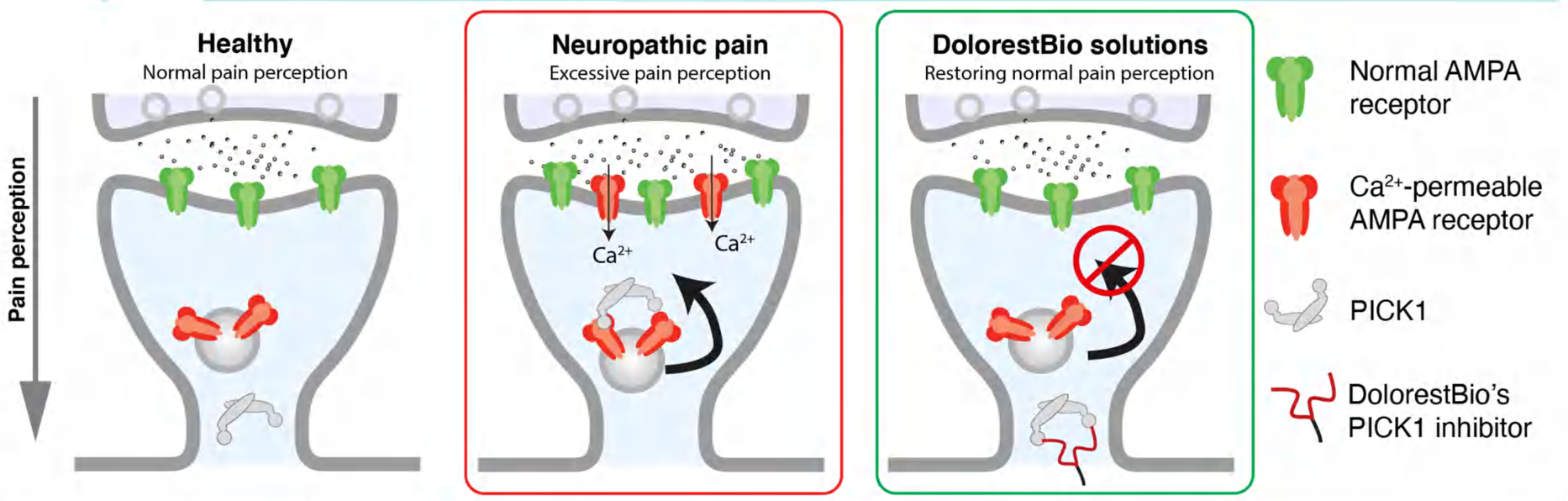
Solutions for Chronic Pain

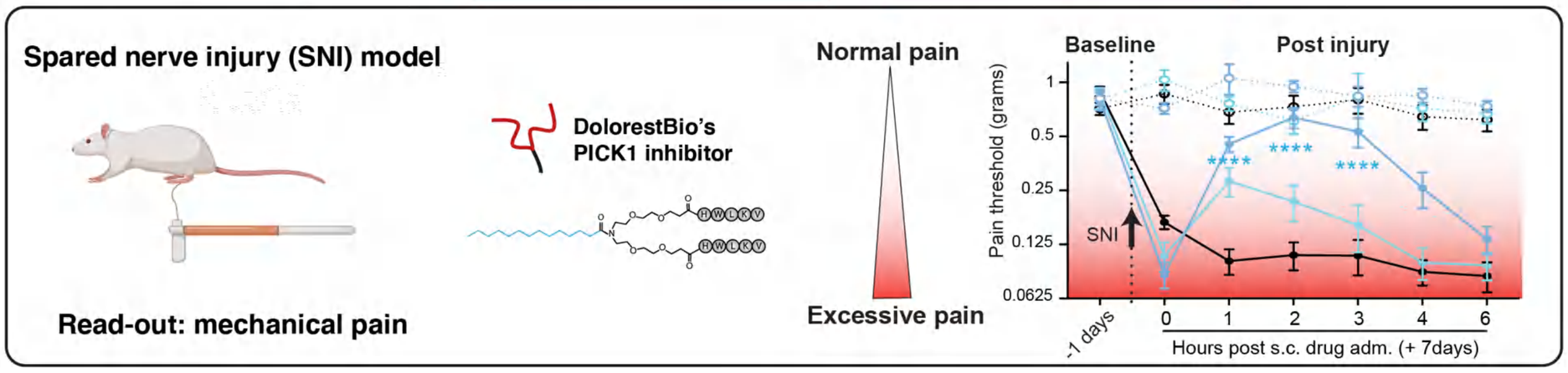
Peptide and gene therapy solutions for treatment of chronic pain without the usual disabling side effects

Biotech & Pharma

DolorestBio







Technology Description

Our technology enables patients suffering from chronic pain to maintain a normal, pain-free life. By specifically targeting the neural alterations which cause chronic pain, our solution does not affect overall neuro-transmission and does not cause addiction or any other dose-limiting side-effects usually seen in the presently available treatments.

We are advancing the active pentapeptide moiety towards the clinic through two delivery tracks: A peptide-based drug (subcutaneous delivery) and a viral vector-based gene therapy (second generation).

Intellectual Property Rights

DolorestBio has an exclusive license from UCPH to 4 patent families covering both peptides and viral constructs and use of these for treatment of diseases associated with maladaptive plasticity, such as neuropathic pain:

- WO 2020/083905, filing date 22 Oct. 2019, filed nationally and pending in EP + US
- PCT/EP2021/055678, filing date 5 March 2021
- WO 2020/083916, filing date 22 Oct. 2019, filed nationally and pending in EP + US
- PCT/EP2021/055647, filing date 5 March 2021

Team

CEO, Founder
Peter Horn Møller
PhD

CSO, Founder
Andreas Toft Sørensen
Ass. Prof, UCPH

Scientific Advisor, Founder
Kenneth L. Madsen
Ass. Prof, UCPH

CBO, Founder
Niels Skjærbæk
PhD

Scientific Advisor, Founder
Ulrik Gether
MD, Prof, UCPH

Powered by
Marigold Innovation

Current State

- PoC established in several animal models of neuropathic pain
- Peptide efficacy last several days enabling likely once weekly sc. dosing in human
- **Lead candidate identified** with favorable CMC profile
- Clear development plan towards first human dosing
- Further side-effect profiling ongoing
- Gene therapy **efficacy** after single dosing last **more than 1 year** in rodents

Business opportunity and Call to action

DolorestBio is actively seeking investors and partners with focus on both neurological disorders and AAV technology:

- Early stage/seed investors
- Industrial partners with expertise:
  - in pain management
  - clinical gene therapy

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

Contact information
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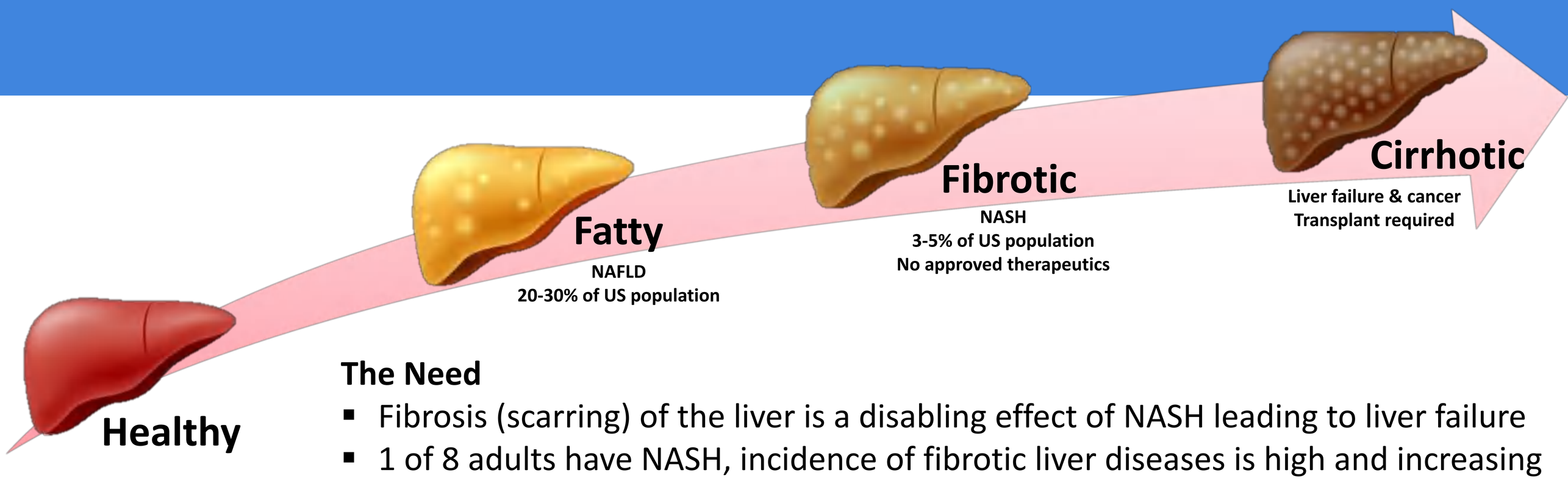
phm@dolorestbio.com

GPR84 antagonists for treatment of liver fibrosis

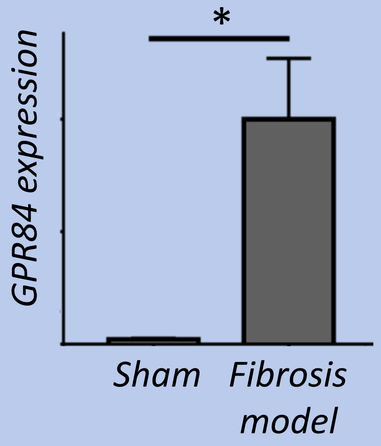
Biotech & Pharma



The Need

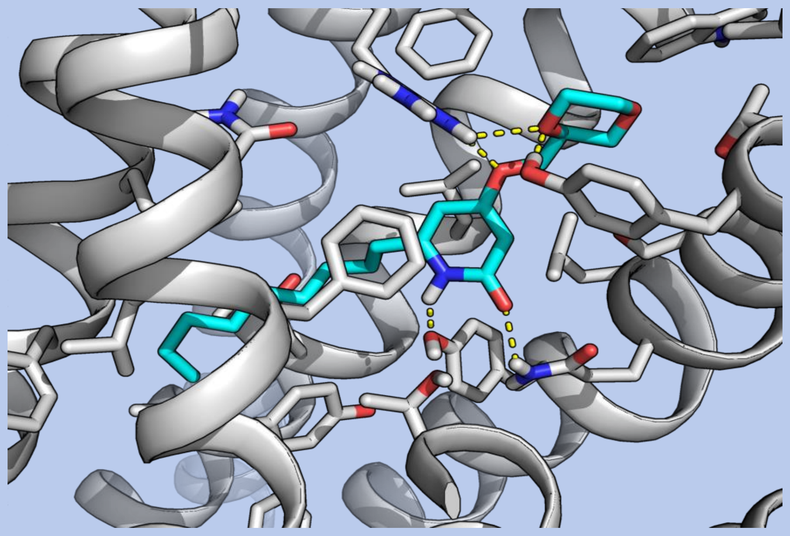
- Fibrosis (scarring) of the liver is a disabling effect of NASH leading to liver failure
- 1 of 8 adults have NASH, incidence of fibrotic liver diseases is high and increasing
- Many failed drugs, still **no approved treatment** for NASH or liver fibrosis
- There is an **urgent need** for effective drugs
- Market size >10B$

GPR84 is highly induced in liver fibrosis



The Target: GPR84

- GPCR – druggable cell surface receptors
- Induced in inflammation and fibrosis
- Knockout or inhibitors protect against fibrosis
- Clinical validation from competitor compounds



Ligand design assisted by modelling based on structural insights

Technology Description

Target

- GPR84 is a GPCR expressed in immune cells and highly upregulated in fibrosis.
- GPR84 knockout or inhibition reduces liver fibrosis in animal models.
- GPR84 inhibitors in clinic have shown effect against kidney, lung and liver fibrosis in humans

Competition

Many players in fibrosis but few companies (only 2-3) have disclosed programs on GPR84

Value proposition

- Novel small-molecule GPR84 antagonists
- Down to IC_{50} = 1.3 nM - most potent GPR84 antagonist known to date
- Selected compounds show favorable physicochemical properties

Target product profile

- Oral, once daily medication that improves the outcome of patients with or in risk of developing liver fibrosis, including NASH and cirrhosis patients.

Intellectual Property Rights

Initial priority application filed 20/12-2019, PCT (WO 2021/123394) published 24/6-2021.
Priority application on optimized compound series filed 18/6-2021.

Team

Professor
Trond Ulven

Medicinal Chemist
Loukas Ieremias

Medicinal Chemist
Asmita Manandhar

Assoc. Professor
Kim Ravnskjær

Assoc. Professor
Elisabeth Rexen Ulven

Current State

We have compounds with single-digit nanomolar potency and good SAR insight from in vitro assays and favorable physicochemical properties confirmed in selected compounds
Plans for next steps include cellular studies in hepatic stellate cells, pharmacokinetic studies, and studies in rodent models of liver fibrosis.
Spin-out planned in Q2 2022.

Business opportunity and Call to action

We are interested in discussions with investors that have an interest and insight in NASH, liver fibrosis and the metabolic disease area, and that could be interested in investing in a spin-out that will develop the compound series into clinical trials.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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ReliaPE

Design-for-Reliability Made Easy

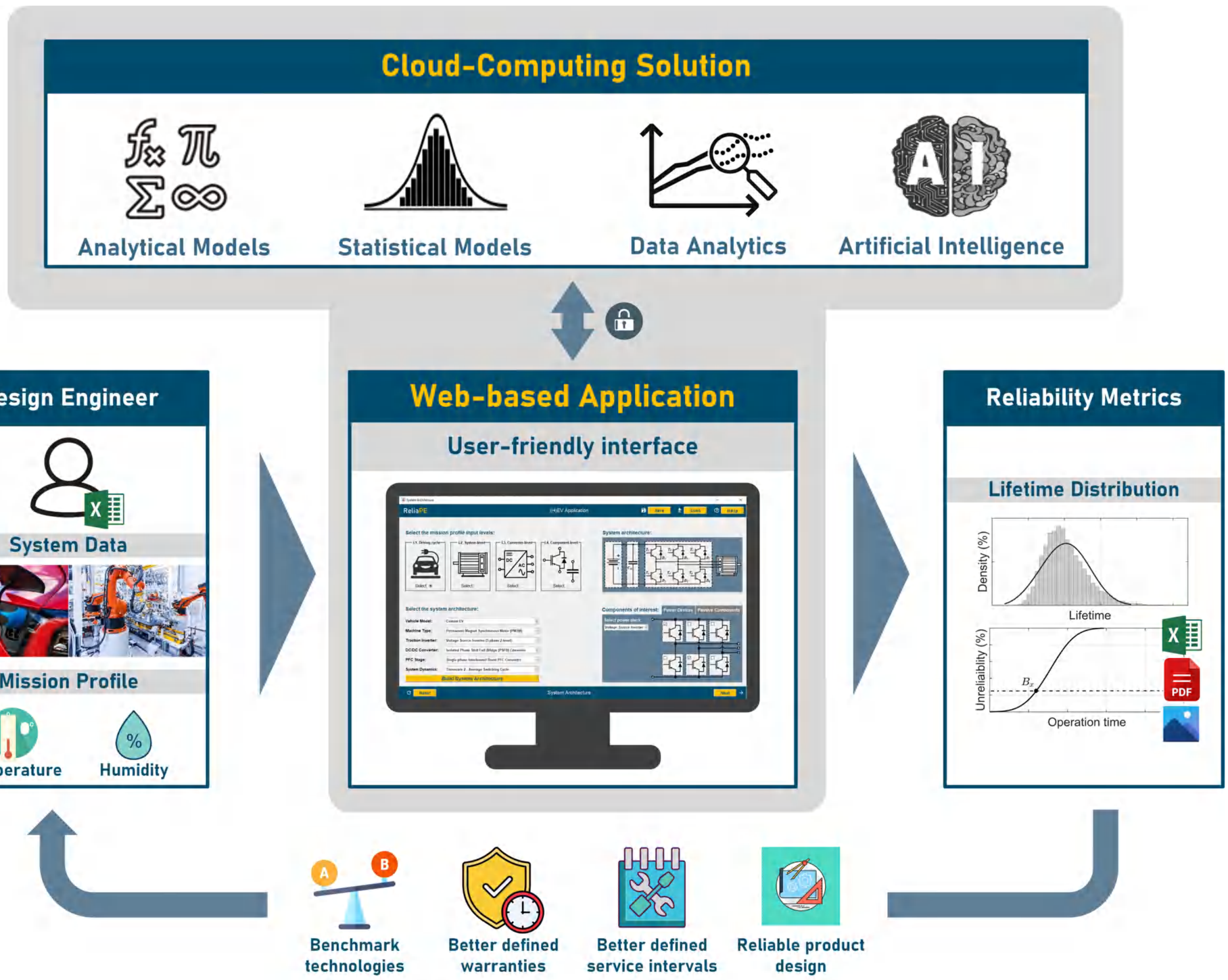
Digitisation, AI & Robotics

A Reliability Assessment Software Tool for Power Electronic Systems

80 % of total electricity is processed by power electronics.

35 % of power electronic failures are due to improper design.

There are NO commercial software tools focused on the reliability of power electronics.



Technology Description

ReliaPE is a pending spinout from Aalborg University, focusing of the development of **software tools** for the **reliability assessment of the power electronics** used in various electrical energy systems. The underpinning methodology based on real-life environmental and loading conditions, the computational-efficient simulation models, and the reliability-oriented AI algorithms, are the core technologies of the tool. It addresses **fast growing billion-dollar markets** such as, E-mobility, industrial drives, renewable energies, and/or household appliances.

ReliaPE allows the user to **quickly benchmark different technologies** during early product development stages, and thus, facilitating the replacement of expensive and time-consuming prototype iterations, with **digital design iterations**. This can help reduce the time-to-market and development costs of new products. Moreover, ReliaPE takes into account the **real-life mission profiles** of the system, which, when used alongside the **universally-compatible digital twin models** of power electronic components, can provide realistic lifetime predictions, and enable the design for specific reliability requirements. This will lead to more reliable power electronic products, and better defined warranties and service intervals.

Intellectual Property Rights

The ReliaPE software is protected under the law of copyright.

Team

Postdoc
Ionuț Vernica

Professor
Huai Wang

Professor
Frede Blaabjerg

Funding

(Sep. 2017 – Sep. 2021)

(InnoExplorer, Sep. 2021 – Sep. 2022)

Current State

In the past 6 years, ReliaPE has grown from a basic vision of a reliability tool, to a proof-of-concept, and to its present Beta version (TRL5), whose core technology is current applied with success by some of our key industry partners, in the industrial drives, and electric traction sectors. In June 2021, ReliaPE secured an InnoExplorer grant from Innovation Fund Denmark, which will allow the team to explore the commercial opportunities of ReliaPE, to filed-test different MVP iterations and features, and to bring the technology from TRL5 to TRL7.

Business opportunity and Call to action

ReliaPE is mainly looking for possible industry collaborations, which can help extend the list of early-adopters in specific markets (e.g., E-mobility, motor drive, renewable energies, etc.), and who can help field-test different MVP iterations and features of ReliaPE.

Secondly, the team aims to make first contact with potential investors, which might be interested in joining ReliaPE's journey after the InnoExplorer funding ends, and when a spinout company is established.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

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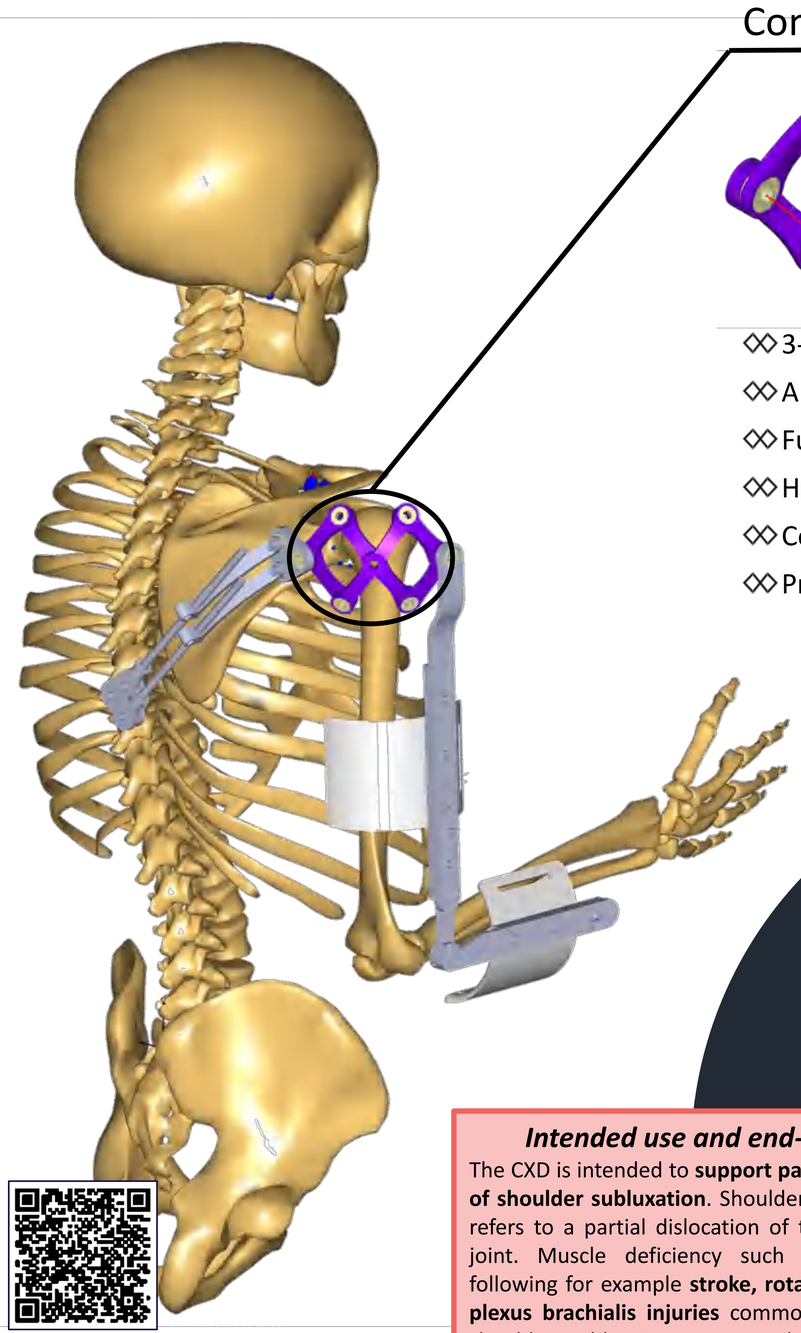
CXD – Compact X-scissor Device

Compact joint for 3D spherical motion

- Full compatibility with the shoulder joint – a unique combination of movement and support
- Better rehabilitation and improved Quality of Life for citizens
- Reduced overall cost for personalized care, drugs and devices
- Award winning and patent protected device

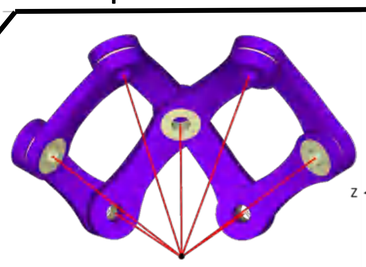
Medtech & Diagnostics

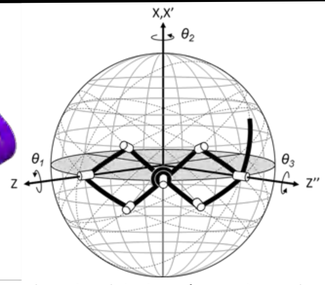
Compact X-scissors Device



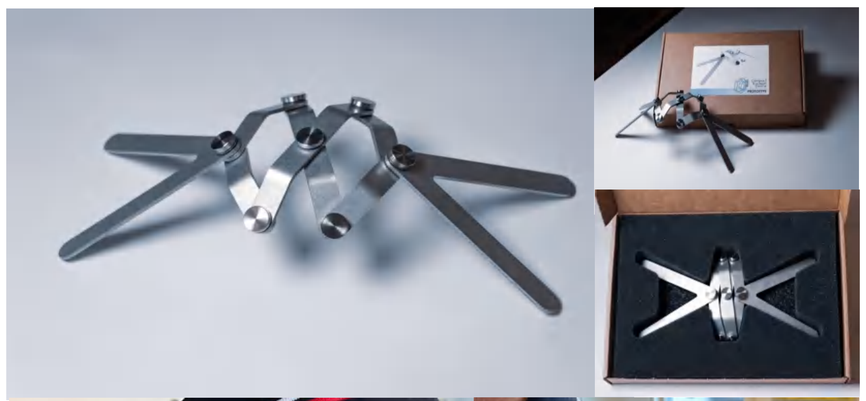
SCAN ME

Compact X-scissor Device Features





- 3-degrees-of-freedom spherical joint (no singularity).
- All joint axes meet in a common centre of rotation.
- Full compatibility with the human shoulder joint.
- High structural stiffness and low friction.
- Compact, fitting underneath clothing.
- Proximal and distal attachment points.



TAM
27bill DKK
All cases of stroke

SAM EU + US
3bill DKK

SOM
DK, SE, NO, SF, DE
400mill DKK

Estimations are based on a CXD cost of 2000 DKK and 20% Incidence and 10% Prevalence. A market share of 5% 8 years after launch will result in 20mill DKK.

Intended use and end-users

The CXD is intended to **support patients at risk of shoulder subluxation**. Shoulder subluxation refers to a partial dislocation of the shoulder joint. Muscle deficiency such as paralysis following for example **stroke, rotator cuff and plexus brachialis injuries** commonly result in shoulder subluxation, causing bone-on-bone friction and pain. Current solutions cannot provide optimum stability of shoulder and arm while keeping full range-of-motion at the same time. This inhibits efficient rehabilitation and recovery. A CXD shoulder orthosis will allow for full range of motion equivalent to a well-functioning human shoulder joint.

Collaborative Partners

AALBORG UNIVERSITETSHOSPITAL – i gode hænder
ORTOS individuel forståelse
Bandagist-Centret
midt regionmidtjylland
Sahva Et liv i bevægelse
vesterværk
BANDAGIST JAN NIELSEN A/S
Innovation Fund Denmark

Technology Description

The CXD is a spherical scissors mechanism capable of three rotations, thereby mimicking the behavior of a spherical joint. The mechanism moves on an imaginary sphere with a constant rotation centre and an arbitrary radius determined by the design parameters. The mechanism is particularly well suited to support anatomical, spherical joints such as the shoulder and the hip, thereby solving a problem that has been haunting the fields of orthotics and exoskeletons for decades.

Intellectual Property Rights

The first patent covers the "Compact spherical 3-DOF mechanism constructed with scissor linkages" in its widest form, for any use. This was patented in 2017 and has been continued into national phase in the US (US no. 16/756,779) and Europe (EP no 18793556.4) in 2020. PCT/DK2018/050262. The second patent covers an application "Spherical Mechanism Constructed with Scissors Linkages with Control Means" filed in 2019 (before the first patent application was published), which is focused on implementation of control means, to control the CXD. This patent application is now in the PCT stage (PCT/DK2020/050110). The CXD is by Miguel N. Castro at Aalborg University.

Team

Research Assistant
Bo E. Seiferheld
Lead Scientist

Professor
John Rasmussen
Technical Officer

MSc. Econ.
Lone G. Schwarz
Strategy and Commercialisation

Current State

We are collaborating with prosthetist partners i.e., Ortos A/S, Bandagist-Centret A/S, BJN A/S and Sahva A/S to continuously ensure commercial relevance and prepare access to market. The device is ongoing tests on patients with collaborative partners at Hammel, Neuroenhed Nord and Interdisciplinary Pain Centre AUH. Clinical testing will provide us with evidence of functionality, product claims, benefits and patient feedback. We will publish case reports on this matter in scientific case journals to be included in the CE-marking. All with economical support from our awarded InnoExplorer grant. ***Technology Readiness Level (7/8).***

Business opportunity and Call to action

- A unique proprietary technology.
- A huge underserved market.
- Clinical tests validating needs & solution.
- Commercial partners ensuring market relevance.
- Validated by Innovation Fund and industry experts.
- Spin out and establishment of company.
- Prepare & Initiate clinical trials and publication.
- Create documentation for CE-mark.
- Raise awareness of the technology among clinicians and prosthetists.
- Fundraising.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

BREAKING NEW GROUND
AALBORG UNIVERSITY

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BettaSensing

Safeguarding consumer trust

BettaSensing

Digitisation, AI & Robotics

Vision:

We safeguard consumer trust

Our solution and invention:

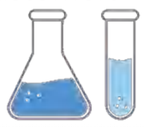
We develop rapid, versatile and reliable quality and authenticity control of liquids at low cost

Our Solution

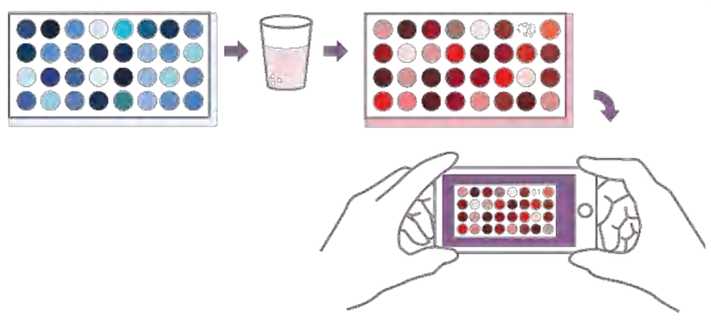
- proof-of-concept establised in beer and milk

1

- Custom nanosensors designed by BettaSensing
- Production of nanosensor vesicles and application on solid surface (cellulose) is outsourced
- Nanosensor sheets provides on contract to customers



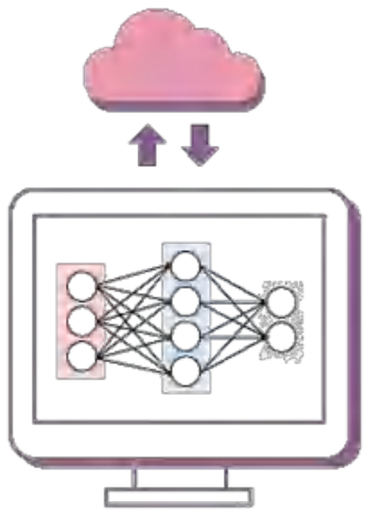
2



- Customer applies product on nanosensor sheet
- After ~45 sec the sheet is photographed using a smartphone
- Result is uploaded automatically via BettaSensing App

3

- Data stored in common database – BettaSensing Community
- Or customer-individual database



4

- Calibration model in the cloud returns result to customer's BettaSensing App

Technology Description

Our sensor grids are based on a library of patented, environmentally sensitive polymer variants changing color in response to stimuli, in which its responsiveness can be adapted for different needs. The sensitivity of the polymer can vary from highly specific entities that react with selected molecules in the test solution (e.g. beverages) to chemical groups that only allow for weak non-specific interactions.
In contrast to the current sensing paradigm, the color change of each individual sensor in our array does not have any discriminative power, but the combined response of the entire grid can be analyzed using ML methods in order to obtain a liquid specific profile (fingerprint). As a result, complex mixtures can be separated based on their variations in their flavor profile.

Intellectual Property Rights

AU have two patent pending applications, one with priority date 03.01.2018 that are now in national phases at Europe, China, Australia and USA. Moreover, a second patent application submitted 26.11.2020 in Denmark and thus in the early stage. BettaSensing is currently negotiating a global and exclusive license to said patent applications from the owner, Aarhus University

Team

Dr. Pernille Ollendorff Hede - CEO
Business development, operations, finances

Dr. Noga Gal- CTO
Sensing, colloidal science, microfluidics, material science

Board members

Dr. Jan Mousing- Chairman
Entrepreneur and consultant in agri-food Innovation and business development

Dr. Peter Dybdahl Hede - member
DANBAN Business Angel. Investor syndication

Assoc. Prof. Brigitte Städler- Academic advisor
Chemistry and Nanotechnology

Current State

Our proof of concept includes a 9 sensors array, that can distinguish with >85 % accuracy between 4 commercials beers. Moreover, using those unspecific sensors, already enabled separation of other beverages, such as milk and coffee. Using our initials sensor platform and boosting it with product specific sensors as well, we aim to create a MVP in the coming year for a specific need, in collaboration with food manufacturer.

Business opportunity and Call to action

We are looking for Investors with experience from the beverage industry, e.g., dairy or beer, our funding need is 400 k EUR which will fund BettaSensing 2022-2024.

We are also looking for a partner within the food sector, who would team up with BettaSensing to apply for piloting grants with the aim to support the first developments prior to obtaining a MVP.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

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CEO
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pernille@bettasensing.com

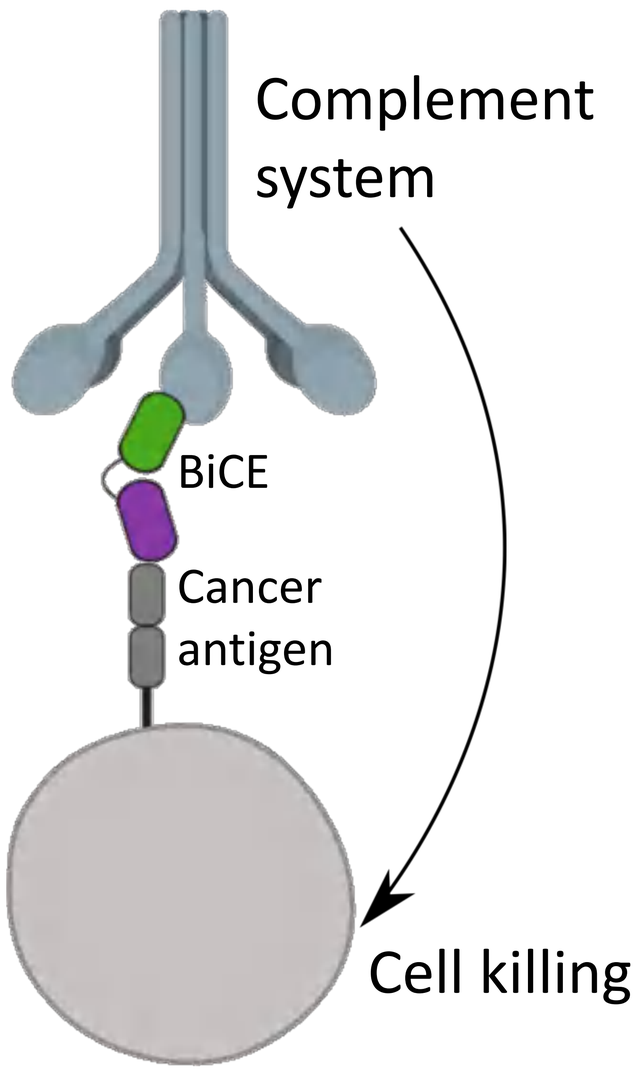
Novel immunotherapy technology

"First-in-class immunotherapy for cancer treatment"

Biotech & Pharma

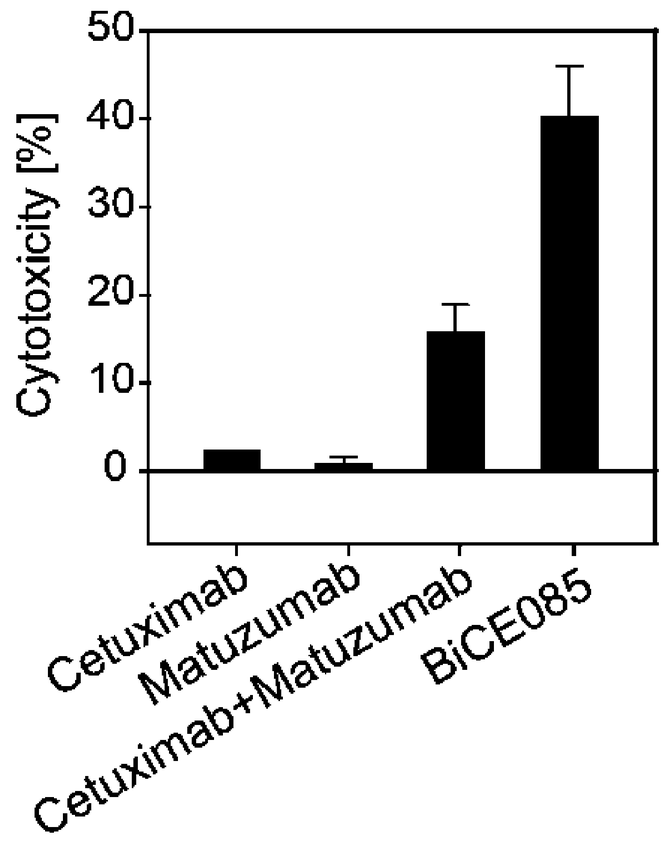
ComMIT Biologics

The complement system, an important part of the innate system, can efficiently clear cancer cells. However, complement is difficult to activate with current technologies and is thus severely under-exploited as a mechanism-of-action of current Immunotherapeutics. COMMIT BIOLOGICS has developed a new antibody-based technology that specifically and potently activate the complement system on cancer cells. We are looking for partners with extensive knowledge within immuno- oncology and drug development who will join us in the development and commercialization of the technology.



- Bi-specific domain antibodies (BICE) can be used to recruit the complement system to the surface of cancer cells (left)
- Activation of the innate immune system by our BiCE085 induces tumor cell killing (right)
- Modular platform – antibodies can easily be exchanged and combined in multiple ways

Killing of EGFR-positive cancer cells in human blood



Technology Description

We have developed a novel technology to harness the power of the innate immune system and will use this technology to develop a new type of immunotherapy for the treatment of various cancers. Our technology is based on bispecific domain antibodies that effectively recruit part of the innate immune system (called the complement system) to the surface of cancer cells. We have termed these molecules Bi-specific Complement Engagers (BiCEs).

Intellectual Property Rights

Aarhus University holds a patent (WO 2019/238674 A1) describing the essential domain antibodies used in BiCEs to recruit and activate the complement system. COMMIT BIOLOGICS has an exclusive license agreement with Aarhus University for the use of these domain antibodies.
PCT application was filed in 2018 and has entered national phase in Europe 2021 and is pending in the US.

TEAM

The founding team consists of Nick Laursen, Mikael Winkler, Dennis Pedersen and Heidi Gytz. We have extensive experience in antibody development and in complement research. Our scientific advisor Lubka Roumemina (Inserm, Paris), serves as KOL in cancer-related complement research. Peter Birk (Accelerace) will assist in business development.

PhD
Nick Laursen
CEO

PhD
Mikael Winkler
CSO

PhD
Dennis Pedersen
CTO

PhD
Heidi Gytz
COO

PhD
Peter Birk
Business Development

PhD
Lubka Roumenina
Scientific advisor

Current State

Current data are for lung, breast, epithelial ovary and haematological cancer cell lines. In vitro data demonstrate that our molecules are superior to approved monoclonal antibodies and the technology can be transferred to other cancer antigens. At the moment, a rat breast cancer model is being established and in vivo efficacy studies will be performed in the fall 2021.We have received funding from Innovation Fund Denmark and the Novo Nordisk Foundation and will be joining the BII Venture Lab program Sep. 2021.

Business opportunity and Call to action

We are seeking partners and investors within the field of therapeutic antibodies and oncology to assist in validating and directing the development of the technology.
The current goal is to build the company and generate in vivo PoC in two animal cancer models. The company aims to attract a series A funding within 1-3 years.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

Contact information
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Business Development Manager
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E-mail: holmager@au.dk

healthycrop.world

Towards pesticide-free agriculture

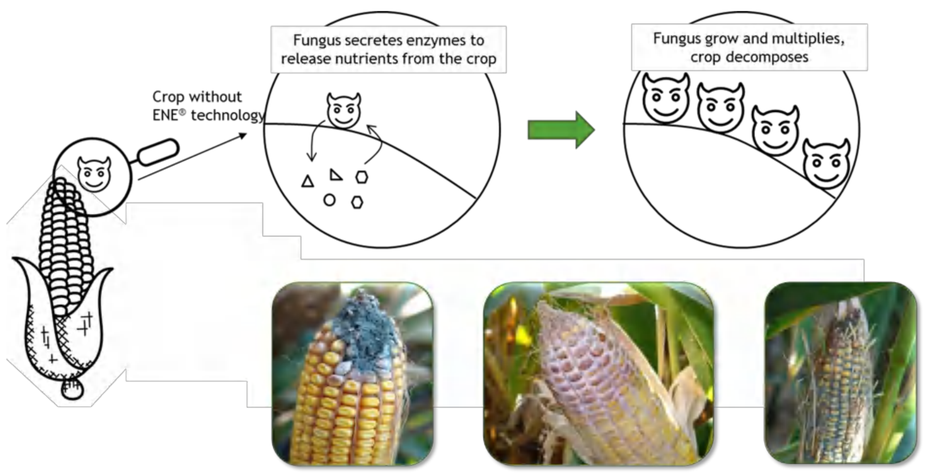
Vision:

We believe in a green future without use of pesticides

Our solution and invention:

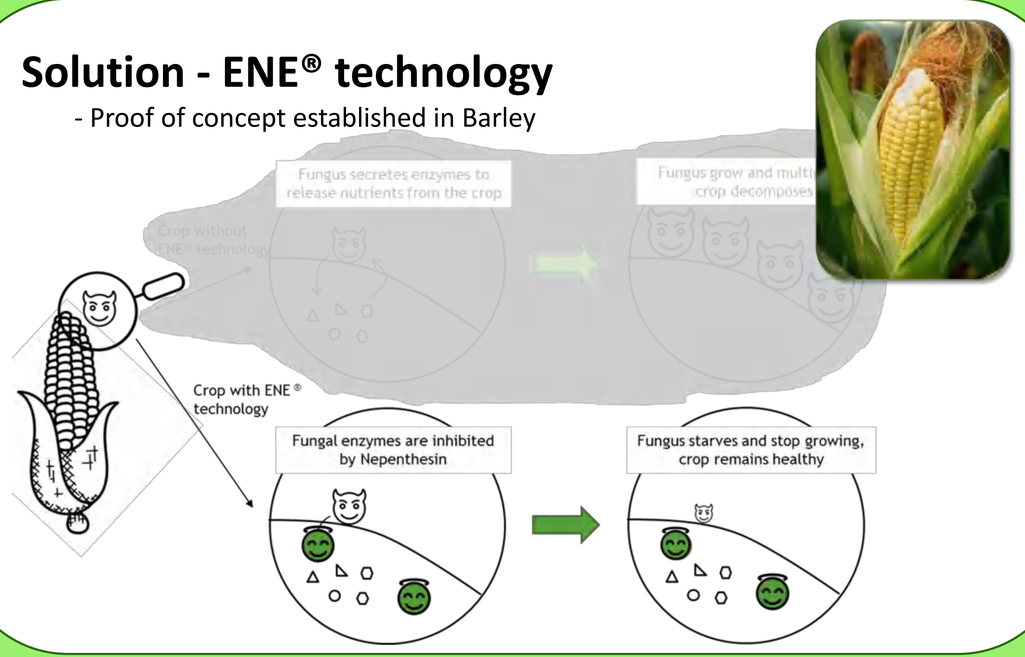
We develop crops naturally resistant to fungal infections

Problem



Solution - ENE® technology

- Proof of concept established in Barley



Business Potential

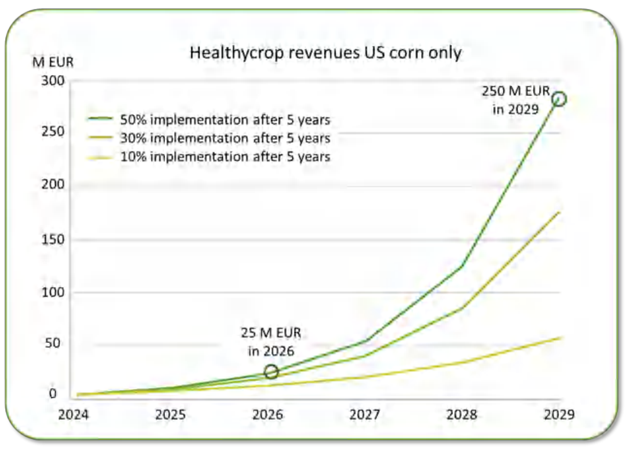
US corn market

40% of world corn production
39.000.000 ha
Value corn seed market US: 14.3 B EUR
CAGR 6,4% 2020 - 2025

Healthycrop Revenues

Lincensing model
5 % implementation in 2026
50 % implementation in 2029

Assumed premium: 35%
10 % of premium to Healthycrop



Timeline and Budget

Funding secured until mid 2024: 760 k EUR

Funding 2021 to 2024:	Ongoing Innobooster grant Private angel investments
Funding from 2024:	Grants and loans European and Danish investors

Technology Description

Our crops obtain natural fungal resistance by enhanced Nepenthesin Expression (ENE). Nepenthesin is a naturally occurring protease first identified in the pitcher secretions of plants of the Nepenthes genus, a group of carnivorous plants.
The resistance mechanism is non-cytotoxic but works through inhibition of fungal activity of phytase, an enzyme essential for releasing phosphate required for fungal growth. The result is starvation of the fungus and therefore reduced growth and toxin production. As the inhibition mechanism involves multiple interactions between the inhibitor and the enzyme, the risk of rapid development of fungal resistance is considered very low.

Intellectual Property Rights

First Patent filed Sep. 2017, PCT filed Sep. 2018. National filings done in 2020 covering Europe, U.S., Brazil, Canada and Australia.

PCT/EP2018/075527: Nepenthesin-1 derived resistance to fungal pathogens in major crop plants
IP owned by Aarhus University, Healthycrop has exclusive rights to commercialise.

Team - experienced and highly qualified

PhD
Pernille Ollendorff Hede
CEO

Professor MSO
Henrik Brinck-Pedersen
CSO

PhD
Zelalem Eshetu Bekalu
Scientist

PhD
Jan Mousing
Chairman of the board

PhD
Peter Dybdahl Hede
Board member

Current State

- Proof-of-Concept generated in Barley, first transgenic corn plants generated
- Soft Funding granted: 230.000 EUR
- First Angel round closed: 530.000 EUR
- We are backed by Vækstfonden
- We are part of StartLife in Wageningen

Business opportunity and Call to action

We are looking for investors to embark on a journey with Healthycrop, preferably someone who can help us getting exposed in the US and help us negotiating with large international seed-companies.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

Contact information
Pernille Ollendorff Hede
CEO
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Intelligent Novel Treatment of Infertility

Biotech & Pharma

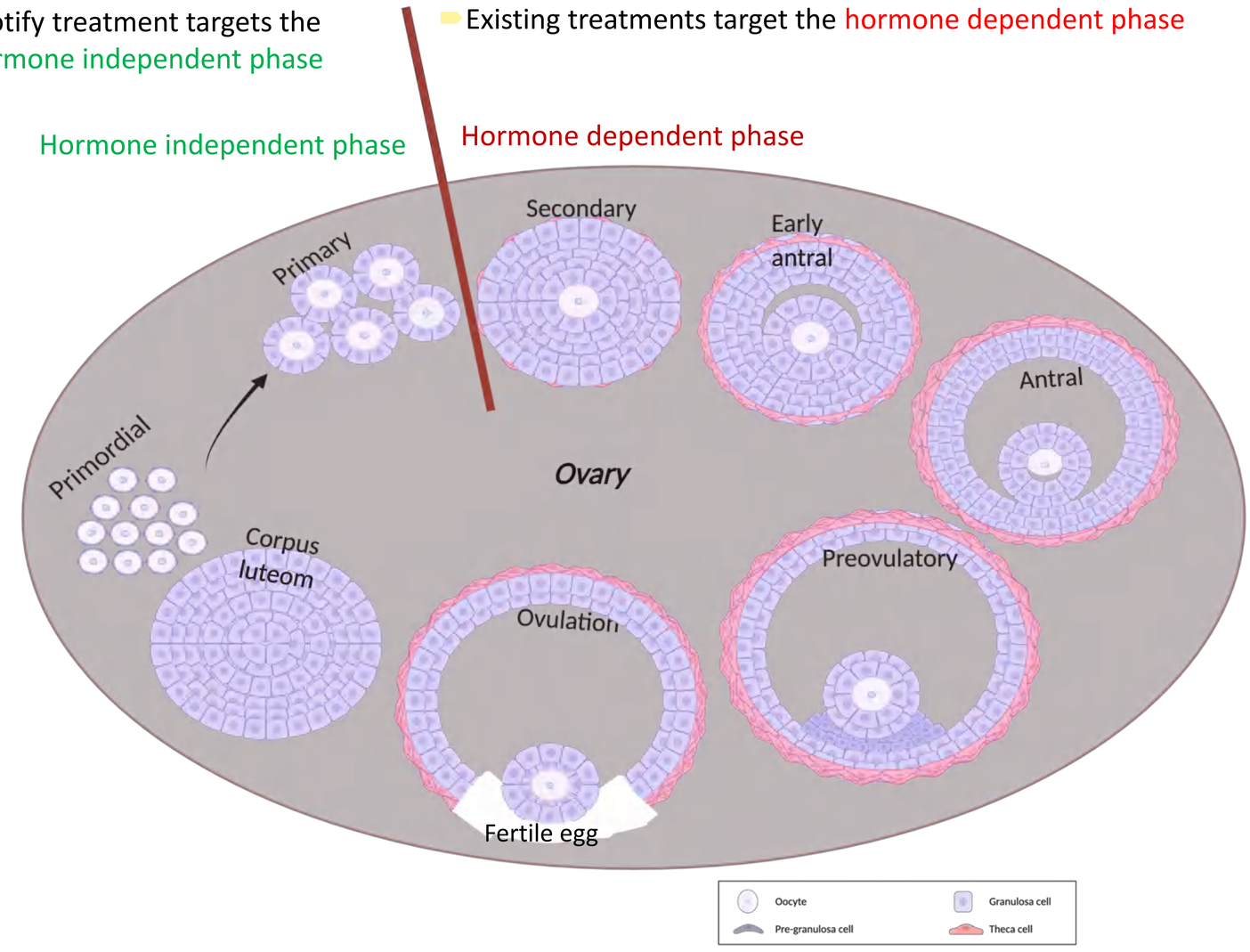
We develop new drugs to activate eggs in infertile women

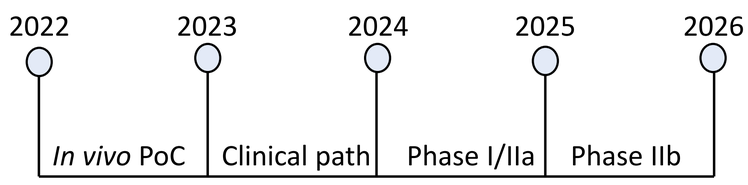
Market drivers

- Aging population
- Obesity
- Increased awareness
- Reimbursement and insurances
- Strong reproductive instinct

Assets

- Growing marked
- Strong scientific team (Scientific researchers >10 years of follicle expertise, fertility consultants, strong records in animal modeling) and management (experienced Business developers)
- Strong IP
- Funding for further development





Technology Description

iNotify focuses on the initial ovarian follicle development to help infertile women, not benefitting from today's standard hormone treatment. The company uses a first-in-class drug inducing factors that regulated the intracellular AKT pathway; a major driver of follicle activation and a signal transduction pathway that promotes survival and growth in response to extracellular signals. The company has identified and validated a compound that activate the AKT pathway in a controlled manner, and thus support activation of dormant follicles, a pre-request for fertility.

Intellectual Property Rights

National phase patent applications: PCT/EP2018/064359 (June 2018) and PCT/EP2018/086239 (Dec 2018).
PCT phase patent application: PCT/EP2021/050262 (Jan 2021)

Team

Karin Lykke-Hartmann
Professor
CEO, iNotify

Mahboobeh Amoushahi,
Assistant professor

Erik Ernst
MD, Fertility treatment

Anders Heuck
Technician

Current State

In vitro and *ex vivo* proof-of-concept has been established. The project is from Sep. 2021 enrolled in the Creation House program at the BioInnovation Institute, Copenhagen

In vivo confirmation, CMC and toxicity studies initiated. Phase I/IIa clinical trial is expected in 2024.

Business opportunity and Call to action

The global *in vitro* fertilization market is projected to reach $ 34 Billion by 2028 (Grand View Research, Inc)

We are looking to develop collaborations and raise capital for registration studies with companies that has experience in fertility treatment.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

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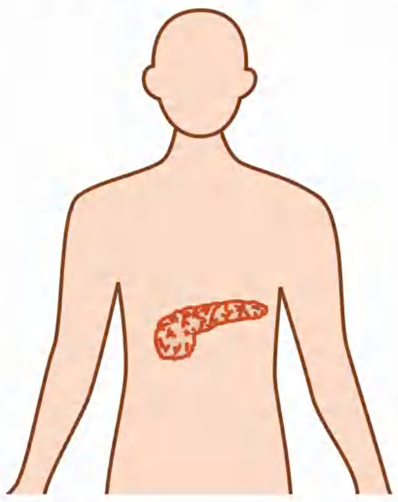
Novel treatment of solid tumors

Kripthonite Therapeutics develops hypoxia-selective drugs for treatment of pancreatic cancer

Biotech & Pharma

Kripthonite Therapeutics develops hypoxia-selective cancer treatments.

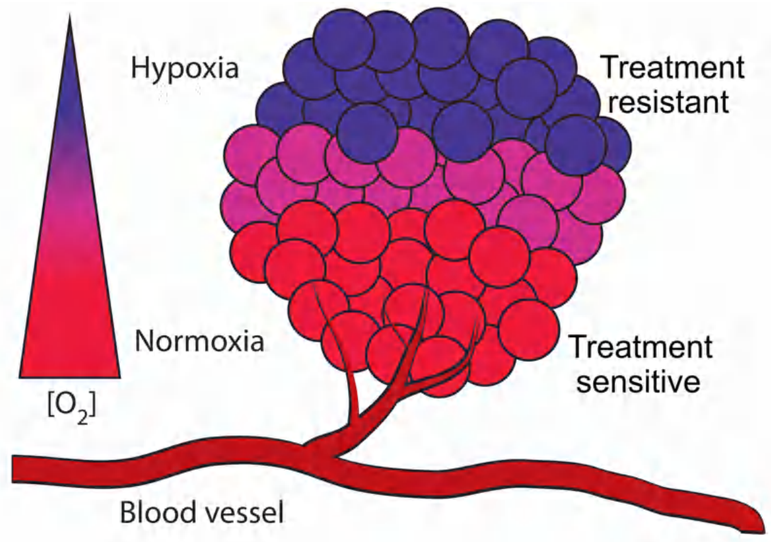
Pancreatic cancer is highly oxygen-deprived (hypoxic)



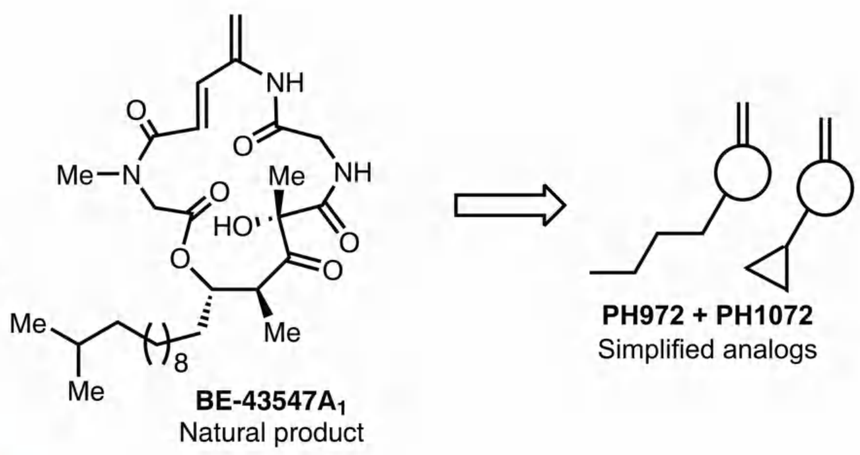
150,000 annual cases in the 7 major markets with a 5-year survival rate at 8.2%

New chemical entities covered by PCT application EP2020/084736

Pancreatic cancer market predicted to reach 4.1 billion USD by 2029 in the 7 major markets + urban China.



- The natural product BE-43547 displays nanomolar toxicity in hypoxic cancer cells.
- Potency of BE-43547 under hypoxia is increased 40-fold compared to oxygenated cells.
- Structural simplification of BE-43547 resulted in a novel class of compounds represented by our lead compound PH972.
- PH1072 is accessible by a scalable robust synthesis and display >720-fold selectivity towards hypoxic cancer cells.
- BE-43547 has displayed in vivo PoC, while PH972 is being tested in vivo at the moment.

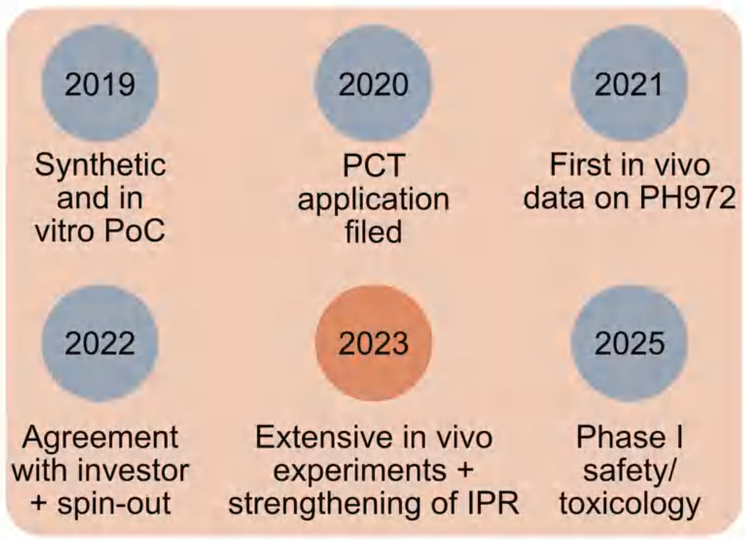


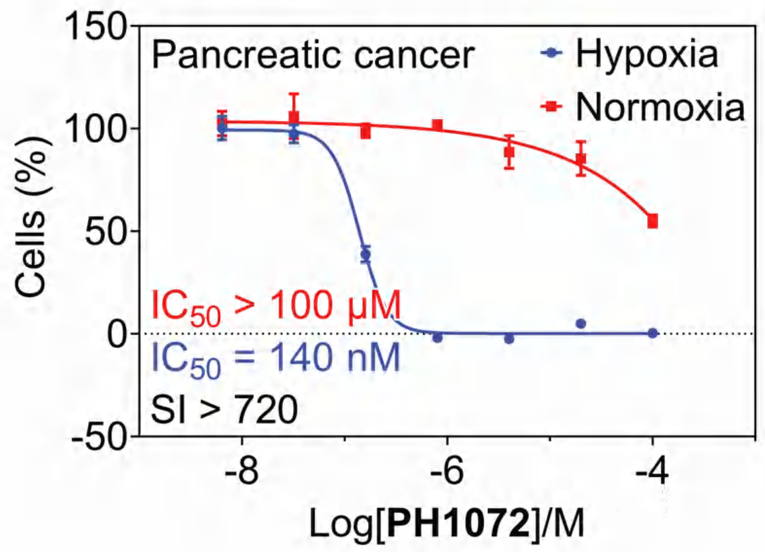
BE-43547A$_1$
Natural product

PH972 + PH1072
Simplified analogs

Business opportunity

- Kripthonite Therapeutics seeks an investor that can support the spin-out from AU and the extensive pre-clinical studies that lead the way to the first human dose.
- Likewise, we are interested in a partnership with an established pharma company that can guide us through the regulatory landscape and (pre)-clinical studies.





Technology Description

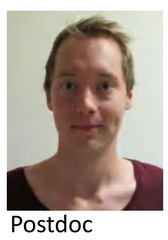
Pancreatic cancer is a highly aggressive form of cancer with a 5-year survival rate of only 8.2%. It is well-established that the aggressiveness of pancreatic cancer is driven by the hypoxic tumor microenvironment caused by the aberrant blood flow and oxygenation of solid tumors. Importantly, hypoxia promotes resistance to conventional chemo- and radiotherapy. Kripthonite Therapeutics develops a novel treatment targeting hypoxic cancers with pancreatic cancer as our primary indication. We have developed a class of compounds that selectively kills hypoxic cancer cells with a hypoxia-selectivity up to 720-fold (hypoxic IC_{50} = 0.1-2 µM vs. normoxic IC_{50} = 5 to >100 µM). The compounds are easily accessible by synthesis, and they induce rapid, controlled necrotic cell death with ferroptosis-like features – even in ferroptosis-resistant cells. Our aim is to develop a treatment that can be combined with the SoC of pancreatic cancer to combat both normoxic and hypoxic tumor tissue.

Intellectual Property Rights

The technology is protected by an PCT application (PCT#: PCT/EP2020/08473, priority date: 4th Dec, 2019) and is owned by Aarhus University. The university has agreed to an exclusive out-licencing agreement of the technology with Kripthonite Therapeutics.

Team

Postdoc
Kristian Mark Jacobsen
CEO, Scientist (Biology)



Postdoc
Per Hjerrild
Scientist (Chemistry)

Professor
Thomas B. Poulsen
Scientific advisor

Professor
Michael R. Horsman
Clinical advisor

CEO, Marigold Innovation
Peter Horn Møller
Funding and IP expert

Partner, Marigold Innovation
Niels Skjærbæk
Business developer

Current State

Currently, the project is at TRL3-4 with solid cellular PoC. The efficacy of the lead compound is currently being tested in vivo via a CRO. We have a robust and scalable synthetic route to multiple analogs that translated well to an external synthesis service.

With sufficient funding, we will expand our current compound portfolio and rate these new analogs by in vitro and in vivo performance. After lead optimization we are ready for extensive toxicology and efficacy studies in advanced animal models.

Business opportunity and Call to action

Kripthonite Therapeutics seeks an investor that can support the spin-out from AU and the extensive pre-clinical studies that lead the way to the first human dose.

Likewise, we are interested in a partnership with an established pharma company that can guide us through the regulatory landscape and (pre)-clinical studies.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

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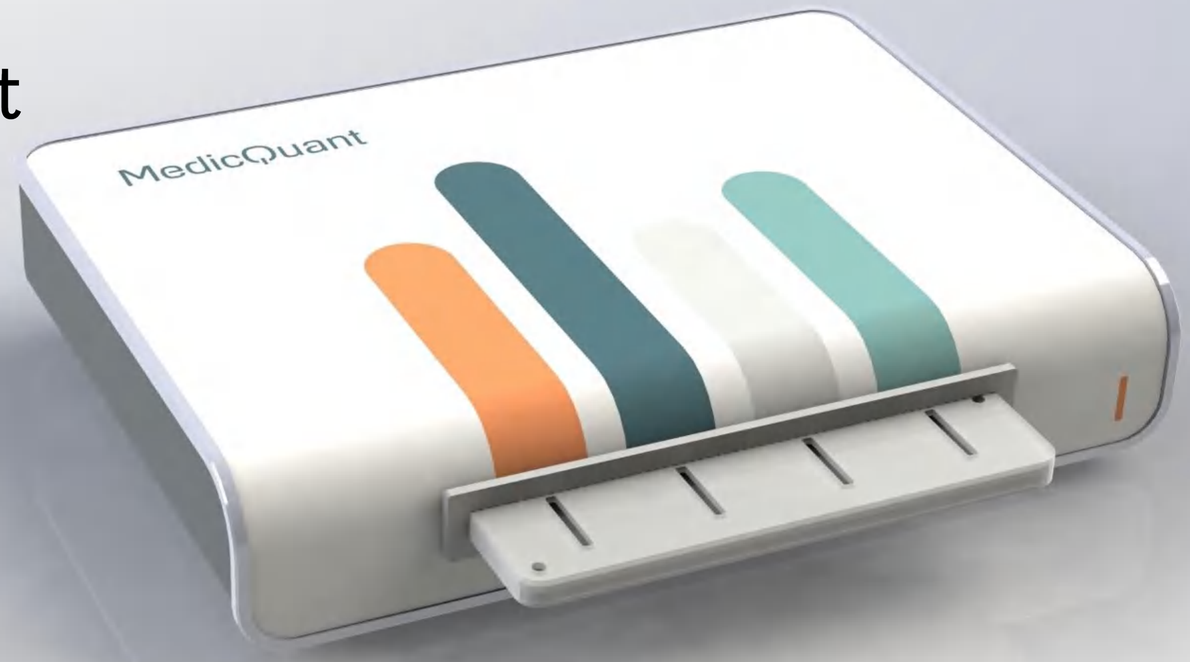
MedicQuant

Providing rapid answers when minutes matter

Medtech & Diagnostics

MedicQuant
ADVANCING HEALTHCARE



Supported by

Innovation Fund Denmark

BioInnovation Institute

Otto Bruuns Fond

EIT Health
EIT Health is supported by the EIT, a body of the European Union

AARHUS UNIVERSITY

Stroke Emergency Care

PROBLEM

13M stroke occurs worldwide and stroke is the leading cause of **disability** and second leading cause of **death**

Anticoagulant drug level dictate the treatment and needs to be measured rapidly as **every minute matters!**

Current solution to measure anticoagulants (DOACs) is a **time-consuming and centralized** method which greatly **delays treatment**

SOLUTION

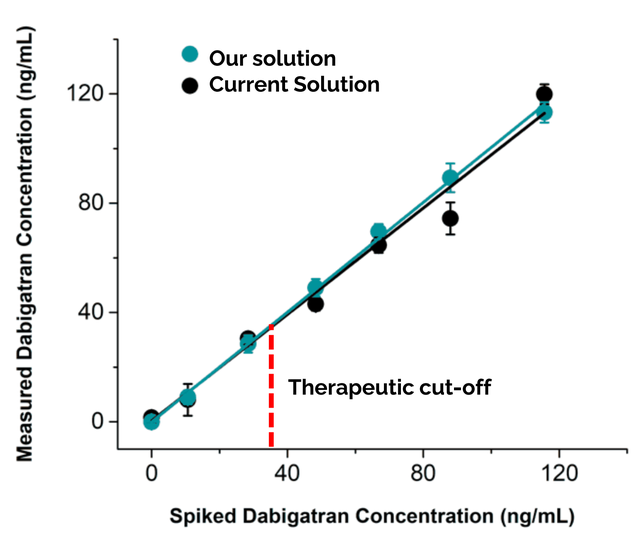
Providing anticoagulant drug levels at the **Point of Care for Clinicians to act upon**

10 minute turnaround time directly from **whole blood**

Faster treatment equals 8% **less mortality** and up to 14% **less disability**

"…the technology is superior in performance in anticoagulant testing"

Dr. Bruno Frey
Head of Technology Assessment, Roche Diagnostics



Technology Description

MedicQuant has developed an in vitro diagnostic device that measures drug levels at the point-of-care to provide clinicians with the answers needed for rapid and life-saving management of patients. Our first product focuses on detection of a new class of anticoagulant drugs in stroke patients. When a patient is having a stroke, fast treatment is essential to reduce mortality and the risk of disability, and here every minute matters. Before treatment can begin the clinician needs to know what the level of anticoagulants are. As of now there are no rapid and point-of-care solutions for measuring a new anticoagulant drug class called DOACs, thus treatment is greatly delayed. We provide the DOAC drug levels directly from whole blood at the point-of-care to help the clinician with the life-saving management of stroke patients. The technology consists of a small benchtop reader, a disposable chip system and an assay technology. This is a generic platform technology, and we have proof-of-concept on measuring antibiotics, anticancer drugs and anticoagulants.

Intellectual Property Rights

A PCT application covering the platform technology filed 21.02.21. PCT/EP2020/054587, Publication number: WO/2020/173822. A positive freedom to operate analysis has been performed. MedicQuant has exclusive license of the technology.

Team

Line Debois, CEO
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Malthe Hansen-Bruhn, CTO
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Kurt Gothelf, CSO
Professor, Co-founder & co-inventor

Christian Waarst
Advisor
Medtech commercialization

Kevin Bengtsson
Advisor
Serial entrepreneur

Current State

MedicQuant is an award-winning startup and has raised more than 260K euro in non-dilutive funding since 2019. We have 3 working prototypes and have benchmarked the technology against the current gold-standard for DOAC quantification, showing similar performance in the clinically relevant range on spiked blood samples. We are in a development, scale-up and preclinical phase, where we will ensure that all components can be produced in a compliant and scalable manner. This will conclude in a pre-clinical study. We aim for market launch in US in late 2024 followed by EU launch.

Business opportunity and Call to action

We are seeking investment for our seed round of 2 million euros, to conclude our development, scale-up and pre-clinical study allowing us to proceed to the clinical validation. As investor you have the possibility to come in at an early stage in a company that have raised a significant amount of non-dilutive funding and has a strong and diverse team. The scalable platform technology is based on solid research and has already been significantly de-risked.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

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NIP-Q
Nanoscale Immunoactive Protein - Quantification

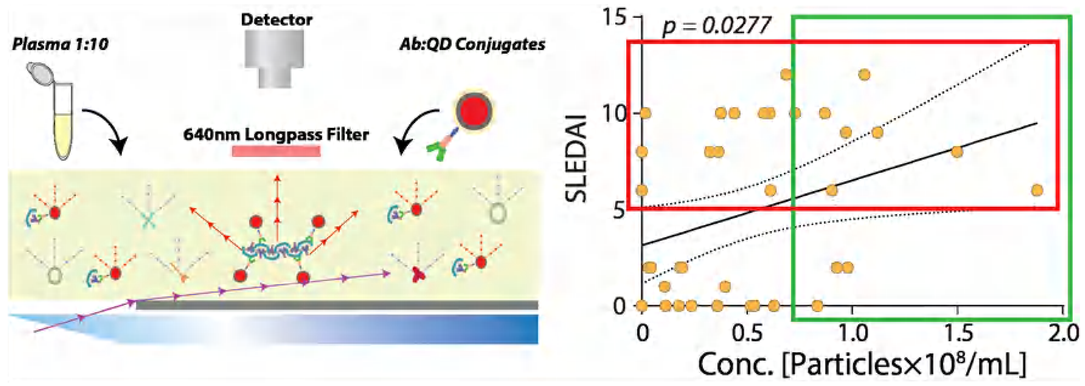
Medtech & Diagnostics

Stratification Tool for Personalized SLE Treatment

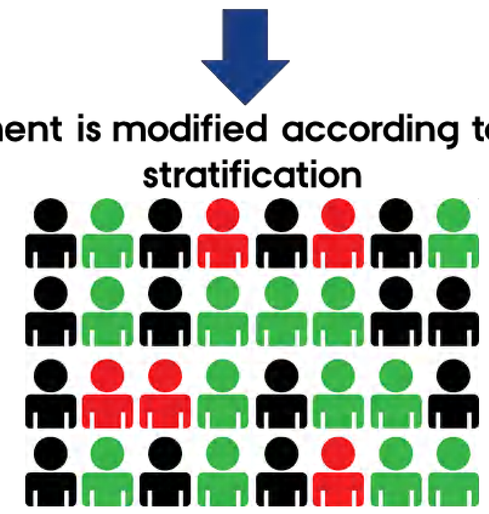
SLE patients attend regular check-ups

NIP-Q analysis of SLE blood sample requested by clinical biochemistry

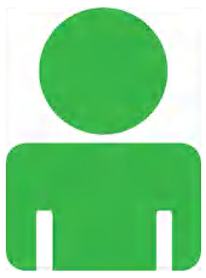
NIP-Q stratification of patient



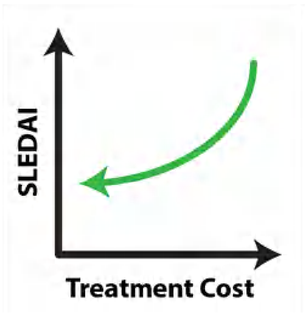
Treatment is modified according to NIP-Q stratification



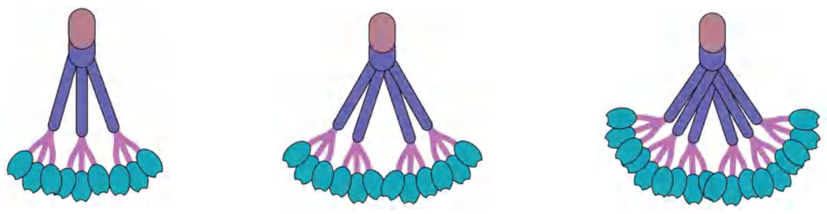
Stratified patients receive optimal treatment (personalized treatment)



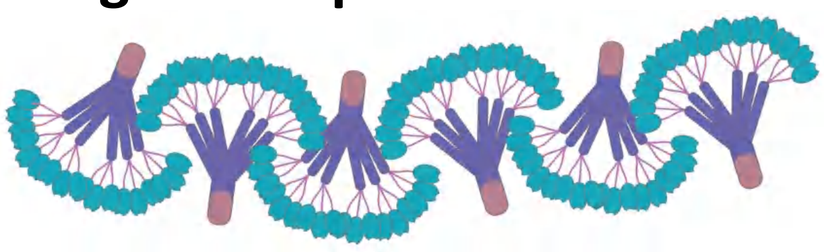
Average SLEDAI score and treatment expenses decline

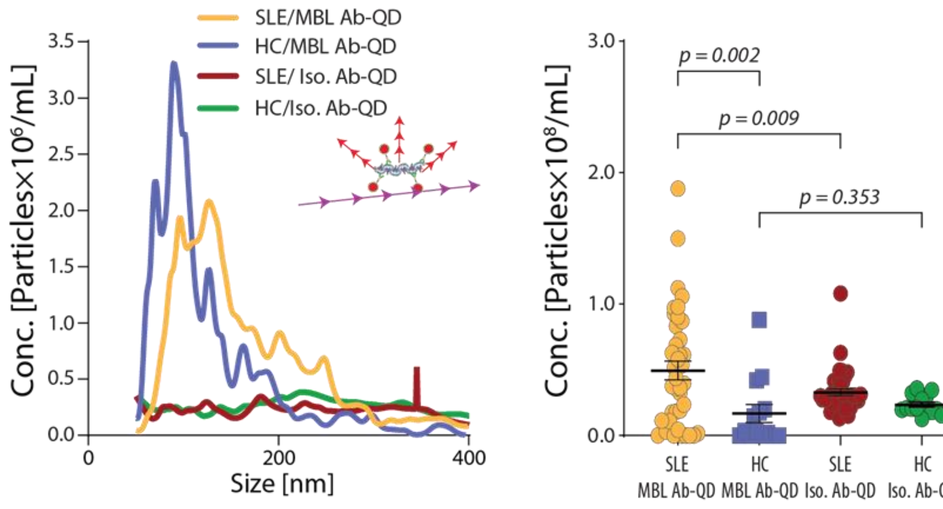


Oligomeric proteins



Superoligomeric protein





Technology Description

Many proteins known to activate the immune system exist in oligomeric forms. The size of these oligomeric forms correlates with the severity of the immune response

NIP-Q enables us to measure the size distribution of oligomeric proteins

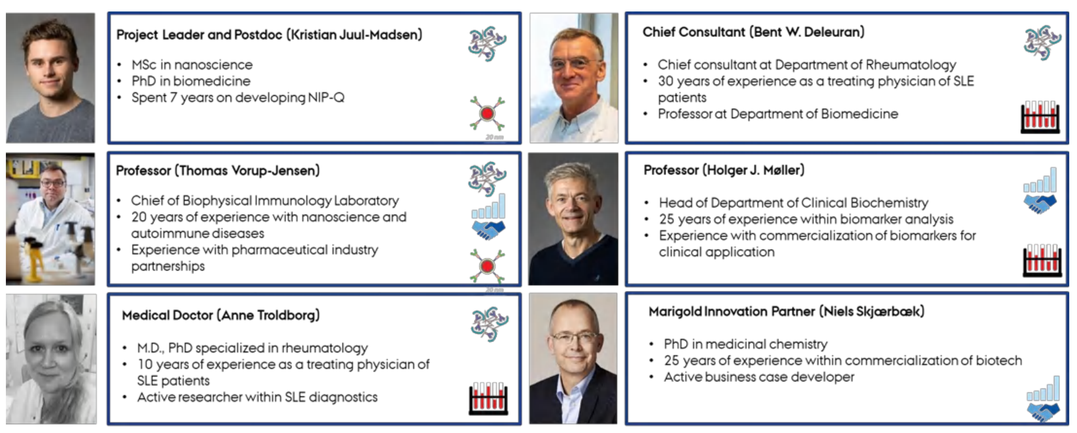
Standard ELISA does not measure size distribution

NIP-Q has a low limit of detection for large oligomeric structures and provides a more accurate measure of size distribution and thus indication of disease severity

Intellectual Property Rights

Patent application covering patient stratification within SLE - currently in PCT phase filed November 2020 (PCT/EP2020/082837)

Team



Current State

- We plan to offer NIP-Q stratification for SLE patients within the clinic. We have initiated very efficient collaboration with University Hospital Skejby
- We intend to establish further entry-points at a number of other Danish hospitals in 2022
- So far, the technique has been validated in 39 patients and 14 healthy controls.

Business opportunity and Call to action

We are looking for an experienced partner and/or investor within treatment of autoimmune diseases to expand the validation of our technology. Our current validation milestones and IP maintenance has an estimated cost of 929.000 DKK.

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Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

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M5

Novel target in immuno-oncology

Biotech & Pharma

OncoSpear Therapeutics

We induce anti-tumor immunity by specific depletion of pro-tumoral macrophages

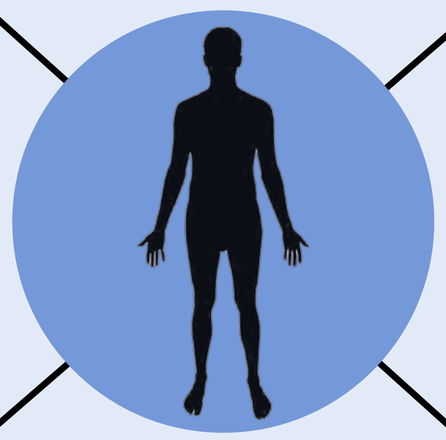
Market and lead indication for immuno-oncology drugs targeting macrophages

Ovarian cancer:

- Infiltration of CD163+ TAM correlates to poor survival
- Depletion of CD163+ TAM in preclinical mouse model leads to reduced tumor burden
- **High unmet clinical need**
- 2016: 186,626 patients in 7MM, market size 1.8 bUSD, AGR estimate 14.5%

Melanoma

- Infiltration of CD163+ TAM correlates to poor survival
- Depletion of CD163+ TAM in preclinical mouse model leads to T-cell infiltration and tumor regression
- 2016: 724,704 patients in 7MM, market size 3.3 bUSD, AGR estimate 5.3%



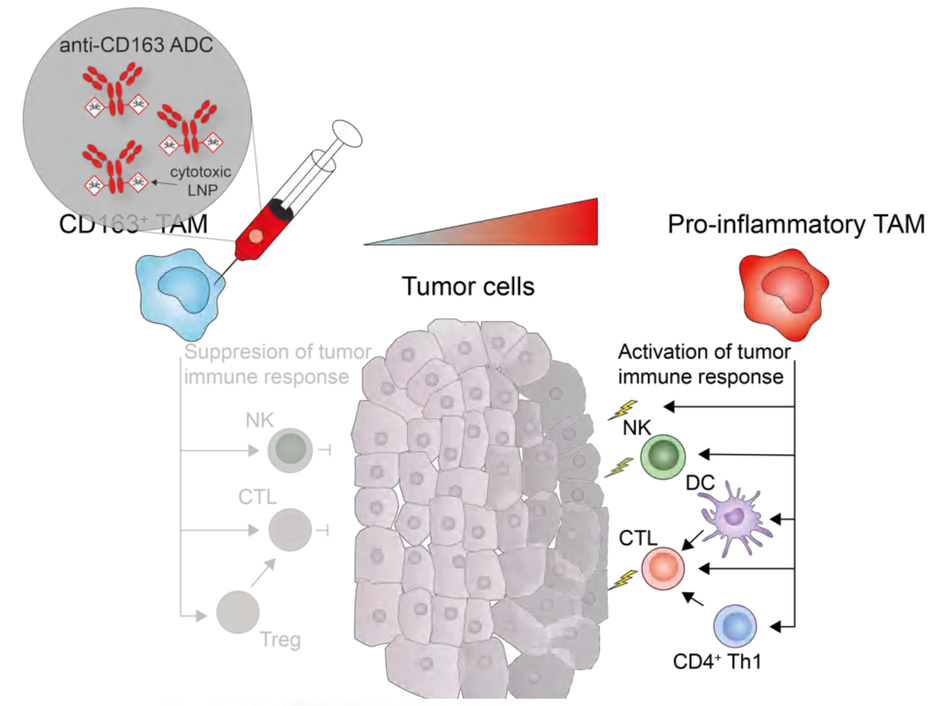
Pancreatic cancer

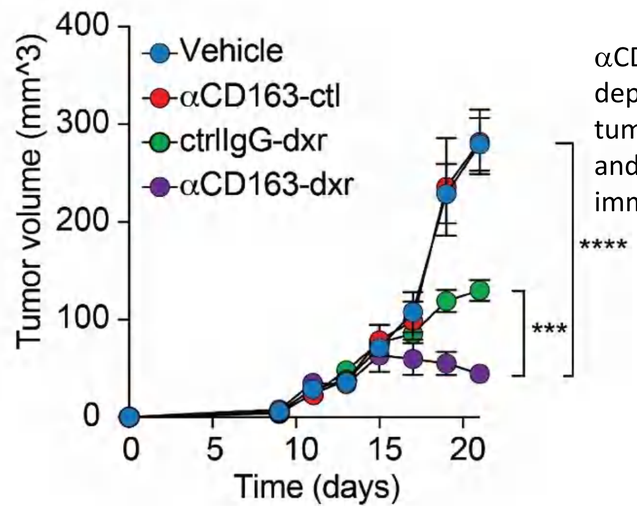
- Infiltration of CD163+ TAM correlates to poor survival
- Depletion of CD163+ TAM in preclinical transgenic mouse model leads to improved OS
- **High unmet clinical need**
- 2016: 106,133 patients in 7MM, market size 1.3 bUSD, AGR estimate 5.7%

Head and Neck cancer

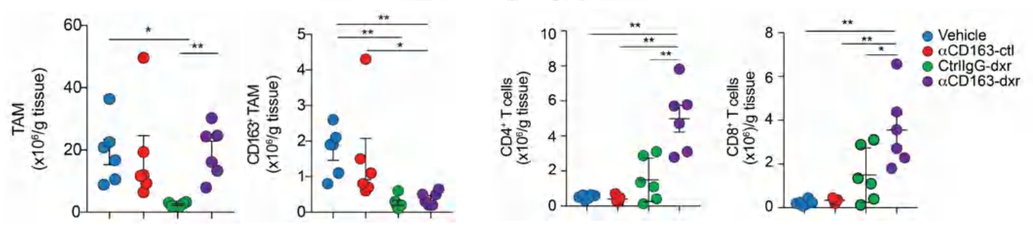
- Infiltration of CD163+ TAM correlates to poor survival
- **High unmet clinical need**
- 2016: 484,361 patients in 7MM, market size 0.6 bUSD, AGR estimate 21.6%

Tumor eradication by targeted depletion of pro-tumoral macrophages in ICI resistant tumor





αCD163-dxr specifically depletes CD163+ pro-tumoral macrophages and induces anti-tumor immunity



Technology Description

We have identified and defined a specific subset of immunosuppressive macrophages that accumulates in tumors of patients not responding to currently established immunotherapies and actively keeps effector immune cells out of the tumor stroma. Importantly, the significance of this macrophages population in tumor progression is underscored by excessive amount of clinical reports showing a negative correlation between infiltration and survival is a vast number of cancers.

Importantly, we have shown in pre-clinical animal tumor models, that selective depletion of this macrophage subset leads to tumor regression by activating a strong anti-tumor immune response. OncoSpear Therapeutics has extended this principle to human tumor-associated macrophages expressing the same target and are now developing an efficient and safe drug candidate for cancer treatment.

Intellectual Property Rights

WO2020058372. Composition and claims on reducing level of CD163+ TAMs. Filed 2019
WO2011039510. Composition and use claims. Granted in US and China, EP pending
US9476890. Composition of matter claims on CD163 binding antibody. Issued in US.

Team

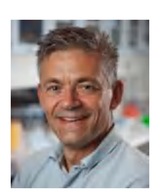
Associate Professor, SDU
Jonas Heilskov Graversen
CEO, co-founder

Assistant Professor, AU
Anders Etzerodt
CSO, co-founder

PhD
Esper Boel
Executive Chairman

Professor, Kings College London
Toby Lawrence
Advisor, co-founder

Professor, AU
Søren Kragh Moestrup
Advisor, co-founder



Professor, AUH
Holger Jon Møller
Advisor, co-founder

Current State

We have strong pre-clinical data showing that specific depletion of CD163+ TAMs leads to a strong repolarization of the tumor microenvironment and induction of an efficient anti-tumor immune response and tumor regression driven by a massive infiltration of inflammatory macrophage , NK cells and activated T-cells.
We are currently developing clinical relevant therapeutic antibodies for depletion of CD163+ macrophages.

Business opportunity and Call to action

OncoSpear is a newly founded university spin-out that is being headed by a strong team of experienced scientists with a successful track record in the field of cancer immunology and development of biotech companies.

We are currently developing our therapeutic antibody platform for specific depletion of CD163+ macrophages and are looking for seed-funding or partnering in order to accelerate the project towards the clinic.

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AARHUS UNIVERSITY

SDU

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Seidun Therapeutics

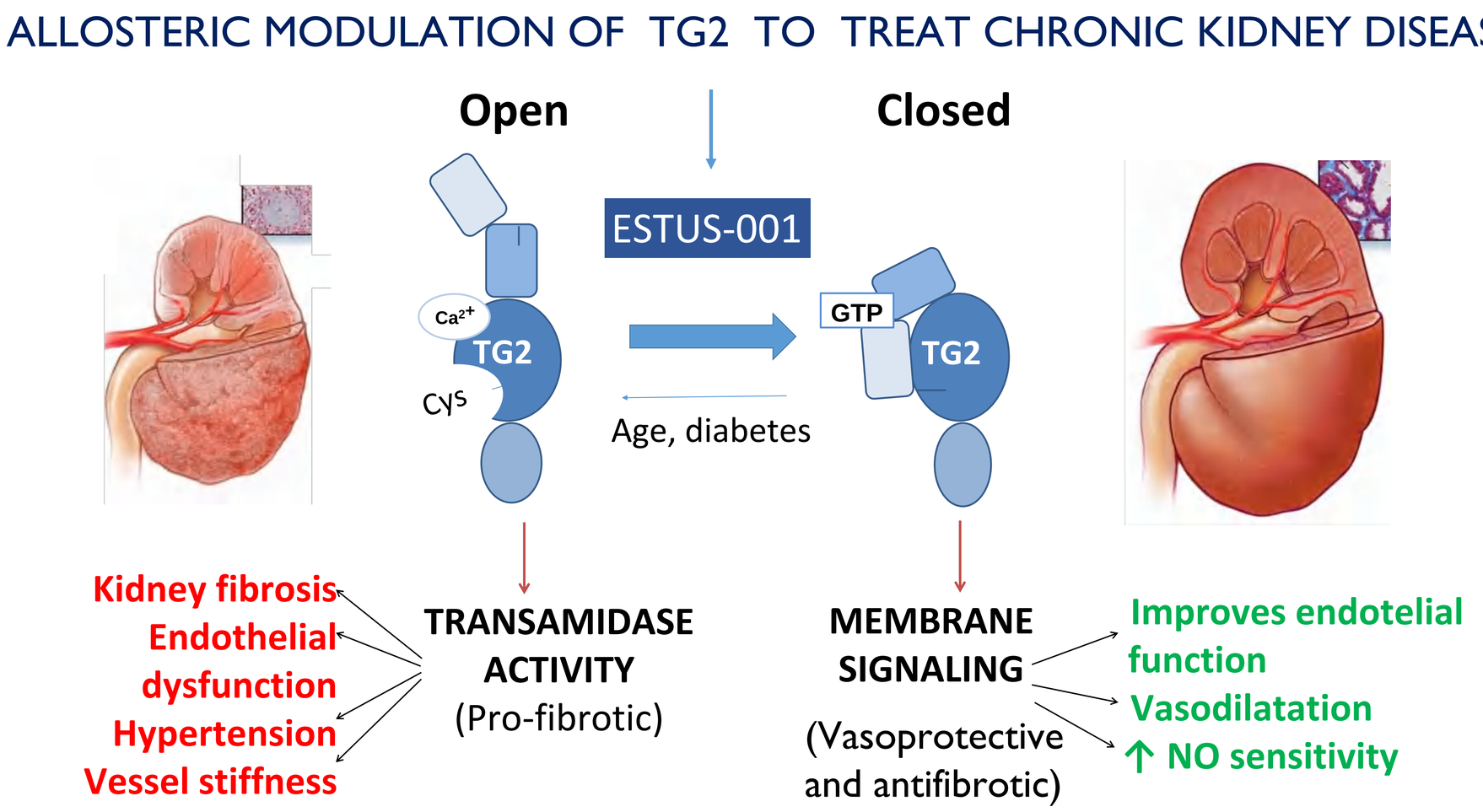
Biotech & Pharma

Turning a bad guy into a good guy to treat chronic kidney disease

Chronic kidney disease is a global problem with a prevalence of more than 10% that kills 1.2 million people annually. Current treatments only delay the progression

Fibrosis and vascular dysfunction are hallmarks of the chronic kidney disease that we believe need to be addressed combinedly for an effective treatment

Our small molecules target Transglutaminase 2, a key enzyme driving the fibrotic process in chronic kidney disease, and by modulating its conformation transform it into a vasoprotective ally



Engholm et al. Br J Pharmacol 2016- doi: 10.1111/bph.13393
Pinilla et al. Hypertension 2021- doi: 10.1161/hypertensionaha.120.15352
Prat-Duran et al. Pharmacol Ther. 2021- doi: 10.1016/j.pharmthera.2020.107787

Technology Description

Chronic kidney disease is a global problem with a prevalence of more than 10% and without treatments to halt its progression. Fibrosis, the replacement of healthy kidney tissue with non-functional scar tissue, is one of the hallmarks of the disease together with vascular rarefaction. These hallmarks results in decreased perfusion which makes the delivery of therapeutics into the fibrotic lesions a challenge. The pro-fibrotic enzyme Transglutaminase 2 (TG2) has emerged as an important target in chronic kidney disease, but current approaches focus only on inhibiting its activity irreversibly. We have discovered a family of allosteric modulators that induce a conformational change on TG2, resulting not only in the inhibition of the pro-fibrotic activity but also in a vasoprotective and vasodilatory effect.

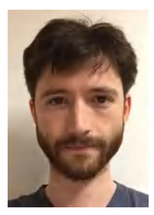
Intellectual Property Rights

PCT/EP3607948A1- Estefano Pinilla & Ulf Simonsen- Tissue Transglutaminase modulators for medicinal use- Aarhus University

Seidun Therapeutics has a license agreement in place with Aarhus University

Team

MD., PhD, Ulf Simonsen
Inventor and Scientific Development



PhD, Estéfano Pinilla
Inventor and Scientific Development

MD., PhD, Niels H. Buus
Scientific Development

PhD, Dan Peters
Chemical Development

MSc, Jón Ingi Benediktsson
Commercial Development

MD. PhD, Tariq Sethi
Scientific Advisor

Current State

We have a strong data package using our tool compound (ESTUS-001) in different animal models as well as in human arteries showing a vasoprotective effect that increases with aging and diabetes, as well as preliminary data showing anti-fibrotic effects in a model of human kidney slices. We have positive preliminary data on selectivity, pharmacokinetic and toxicology. Currently we are working on a medicinal chemistry program to optimize the compound from which we will select our lead, as well as in testing the efficacy *in vivo* in a kidney fibrosis model

Business opportunity and Call to action

We are looking for funding to stablish a medicinal chemistry plan for compound optimization, conduct the pharmacokinetics and pharmacodynamics profiling and 7-day toxicity to select out lead compound. We will continue our validation in the human kidney slice model and testing the efficacy in vivo a kidney fibrosis model. The key outcome is to have a de-risked lead candidate. The goal is to maturate the project to attract further funding. Additionally, funding will be used to strengthen the management team, hiring a CEO, COO and part-time CFO.

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TEGnology

Digitisation, AI & Robotics

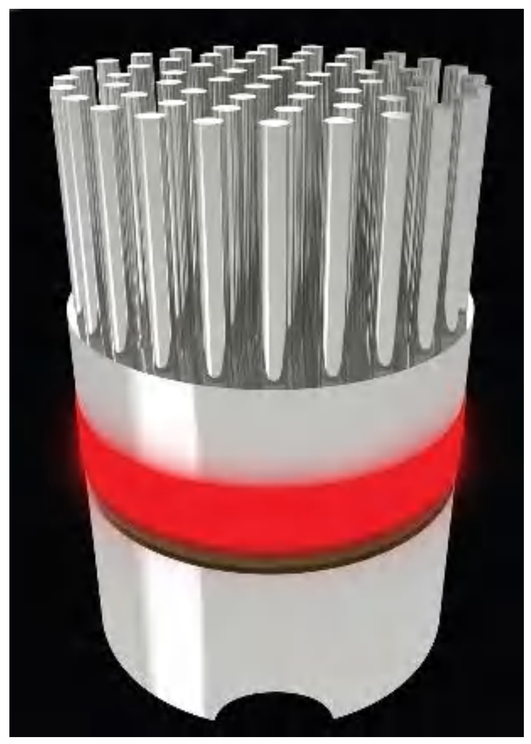
Enable truly autonomous and maintenance-free IoT

TEGNOLOGY
Thermo Electric Energy

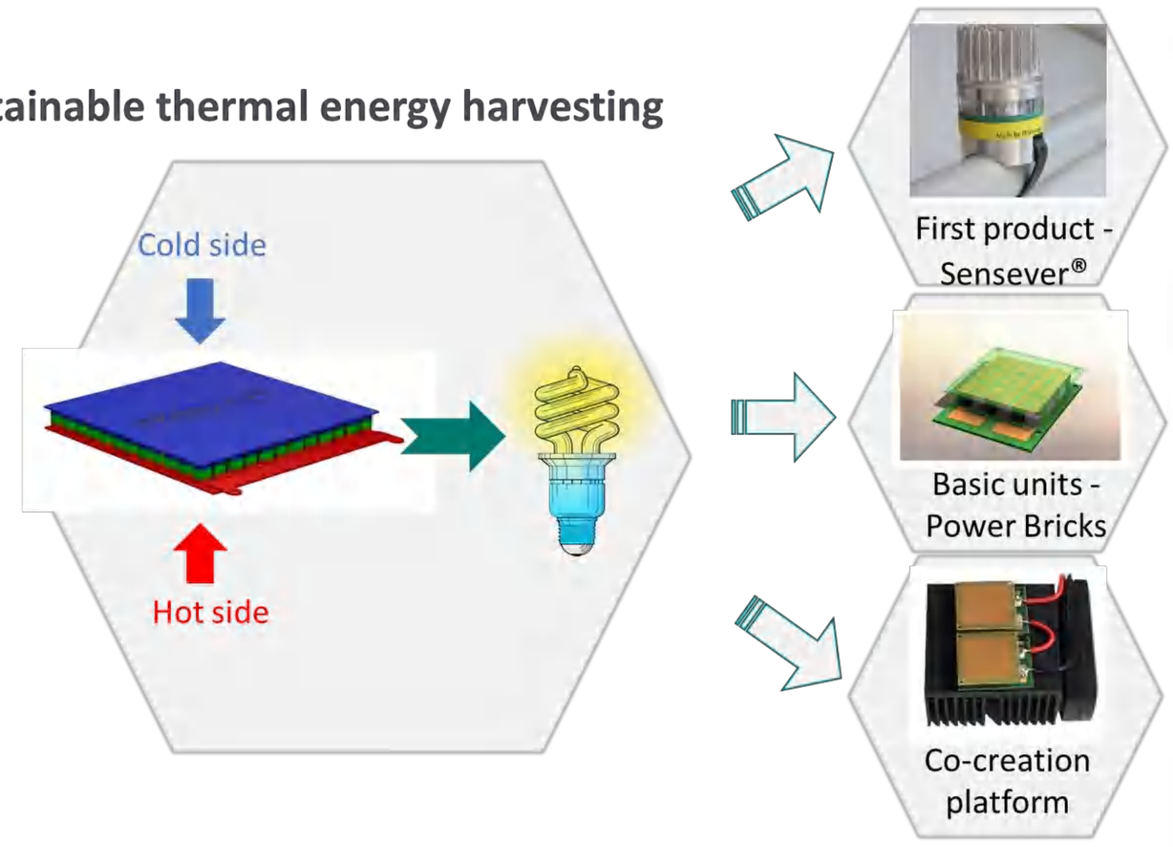
1 **IoT and AI require more and smarter of data.**

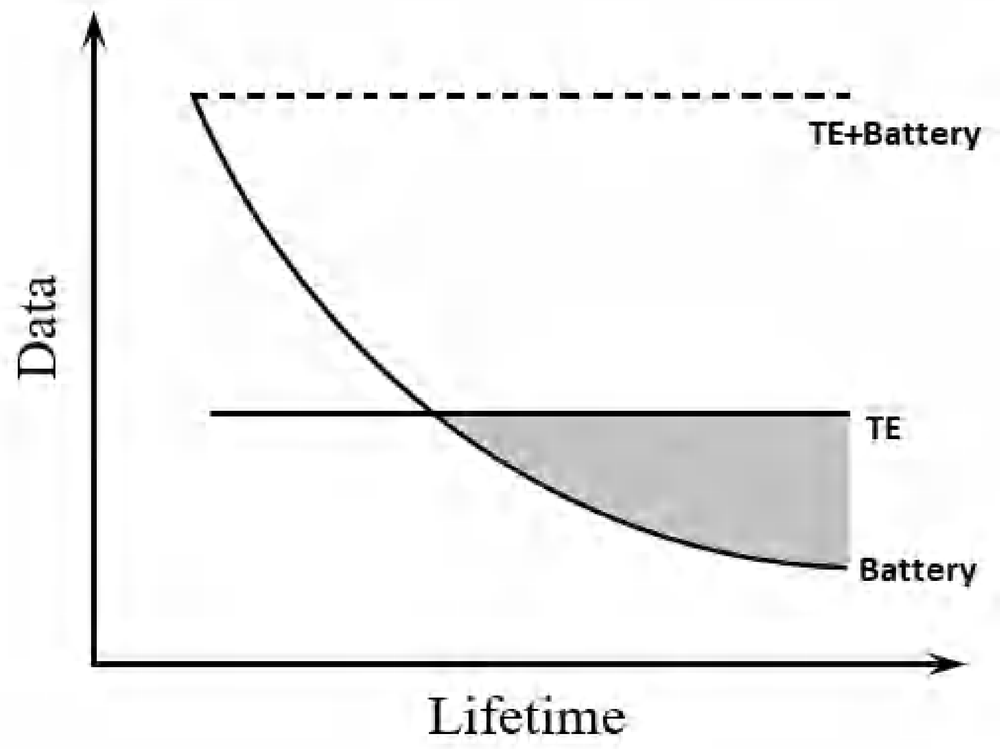
2 **Power supply can be difficult in hard-to-reach places.**

3 **Batteries are less sustainable and reliable.**



Sustainable thermal energy harvesting





Technology Description

As the digitalization go deeper in industry, more and more devices will be connected by wireless sensors. But powering those sensors can be difficult and expensive. Today, they are powered either by battery or cable, which needs frequent maintenance and involves man-power. Not to mention battery pollutes. TEGnology's self-powered IIoT platform – Sensever® – converts temperature difference directly into electricity in the -30 - 180 degC range. This temperature covers the most common working conditions in the heat transfer area in IIoT, which is highlighted as a priority area in terms of effort and investment towards digitalization.

Intellectual Property Rights

Pending patent application relates to a method for manufacturing an energy harvester for converting thermal energy into electric energy, and an energy harvester for converting thermal energy into electric energy.
TEGnology has exclusive rights to use the patent.

Team

Hao Yin
CEO

Hilde Seglem
COO

Jörg Rehder
Sales manager, IoT

Hans-Henrik Ustvedt
Advisory board

Flemming Bjørn Hansen
Founder & Chairman

Rafael Jeppesen
R&D

Electrical engineer
(on-boarding)

Jakob Steffensen
Advisory board

Current State

A customized product has been sold to Novo Group. TRL6-7
A prototype is delivered to Alfa Laval. TRL 5-6
A prototype is going to be demonstrated in EUDP program. TRL 4-5
Collaboration with research institutes in R&D activities for next-generation materials. TRL 4

Business opportunity and Call to action

Seeking investors to raise € 0.5 million for:
- Finalize products from MVPs
  Co-creation started with Alfa Laval in electrification of heat exchangers by installing 400 K sensors.
- Proof of business
  EUDP project granted with DTI, Grundfos, ReMoni, AffaldVarme Aarhus and Silkeborg Fjernvarme.
- Hiring generalist in business development and specialists in financial, electronics and materials.

Seeking industrial and academic partners in developing next generation products.

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Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

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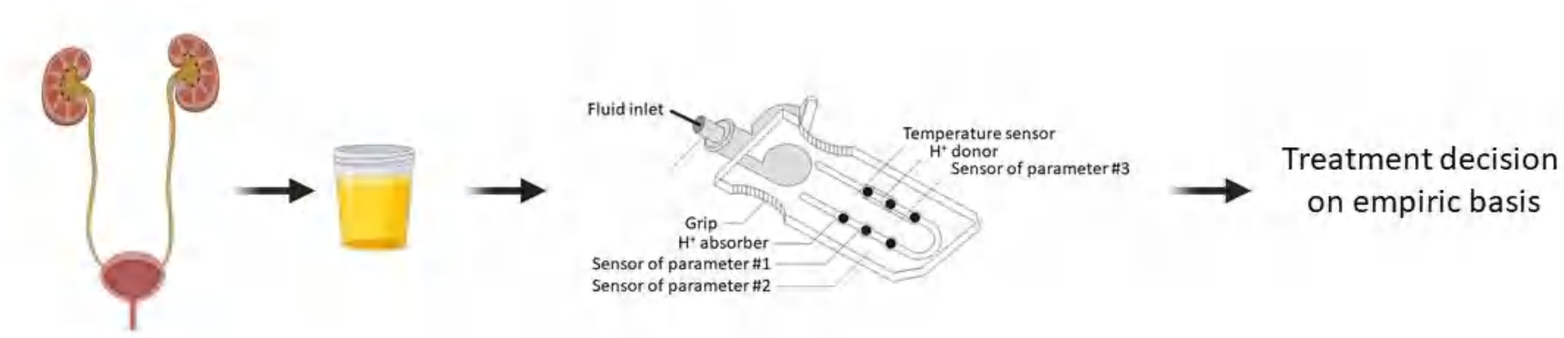
TIGO Diagnostics

Harnessing the untapped diagnostic value in urinary acid/base biomarkers.

Medtech & Diagnostics

The clinical potentials, of a technology that assess urinary acid/base biomarkers, are overwhelming. We have clinical data proofing our concept in two different disease conditions and more to come.



Clinical proof of concept:

Clinical case I; Cystic fibrosis (CF):
We have developed, IP protected and validated a functional diagnostic test for cystic fibrosis patients. Our test is none-invasive and is based on the measurements of acid/base biomarkers in urine samples. Importantly, our test can assess disease severity in individual patients and serve as companion diagnostics assessing treatment efficiency. CF is a growing group of patients with a very high average health care cost.

Clinical case II; Chronic kidney disease (CKD):
We have developed a biomarker concept in urine samples that allow for assessment of patient responsiveness and compliance to alkali therapy. Our concept is validated in a short-term clinical study in 18 CKD patients. Ongoing clinical studies aim to validate the concept in long-term treatment and as a prognostic marker of disease stage and progression. CKD is a frequent disease (10-15 % of the population in the western world develop CKD) with a total health care cost in the US alone of 125 billion $ (2019).

Go-to-marked strategy:
We have engaged with a consultancy company that currently compile a voice of customer analysis for the largest market in the cystic fibrosis case. This report will be the foundation for the draw-up of a go-to-marked strategy and full business model.

Technology Description
Extensive understanding of the cellular and molecular physiology of renal acid/base handling sparked the idea that urinary acid/base parameters could serve as diagnostic biomarkers in diseased conditions. Proof of principle has been reached that urine acid/base diagnostic provides invaluable information for the therapeutic monitoring of CF and CKD patients. Full clinical validation is ongoing.

Urine acid/base parameters can be measured but this is cumbersome, time-consuming and limited to specialized research laboratories. Hence, the clinical diagnostic potential of urine acid/base diagnostics and therapeutic monitoring is unharnessed. A commercially available clinical device offering these measurements does not exist.

Concept of Diagnostic Device
Relevant sensors will be incorporated into a measuring cassette. The use of fast responding sensors all-optical sensors will provide results within a few minutes and ensure low-cost production. Overall we envision a diagnostic platform technology, -the first-ever urine acid/base analyser approved for clinical use.

Intellectual Property Rights
A European patent filed on the CF urine test in 2019. Entered the PCT phase in 2021 . National phases pending.

Team

Chief Executive Officer
TBA upon secured funding for spin-out

Chief Scientific Officer
Mads Vaarby Sørensen
Assoc.Prof, Ph.D, inventor

Chief Medical Officer
Peder Berg
MD, Ph.D student, inventor

Chief Business Officer
Claus Hansen
Life Science
Serial Entrepreneur

Board of advisors:
Jens Leipziger, Prof. Dr.med, inventor, World leading expert in renal physiology

Markus Bliech, Prof. Dr.med, Industrial experience from Novatis and connection to possible industrial partner, Eschweiler

Henrik Birn, Prof. and consultant nephrologist

Clinical partners:
Majbritt Jeppesen, MD, AUH CF Centre

Henrik Birn and **Niels Henrik Buus**, consultant nephrologists, Dept. of Nephrology, AUH

Louise Salomo, MD, Dept.of Nephology, CUH

Technical and industrial contacts:
Klaus Koren, Chemist, Sensor developer, AU
Eschweiler, MedTech company, Kiel DE

Current State

Initial proof of principle that urine acid/base diagnostic provides useful information for CF and CKD patients has been generated. Full clinical validation of the value of the diagnostic concept regarding the CF case will be completed during 2021. Clinical validation of the value of the diagnostic concept regarding the CKD patients was initiated primo 2021 and is currently ongoing.

Informal conceptual discussions with both sensor-developing experts and possible industrial partners have been initiated and are ongoing.

Business opportunity and Call to action

A spin-out company will be launched in ultimo 2021. The initial goal is to mature our diagnostic concept with full clinical validation of the CF and CKD cases.

We seek strategic industrial partnerships and/or pre-seed and seed funding from early stage VC's to develop the project into a Start-up.

We also seek a strong, commercial oriented and business driven CEO who can join the team in a key role as co-founder.

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Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

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Vivictum

Better outcome for immobilized patients

Medtech & Diagnostics

Problem
Immobilized patients leads to prolonged hospitalization due to loss of muscle.

Solution
Vivictum reduces loss of muscle, using novel technology that makes therapy possible in the ICU.

Value Proposition
Reduction of muscle loss leads to better patient outcomes and reduced costs of treatment.

Business Model
Sale of devices and electrodes (consumables, recurring revenue)

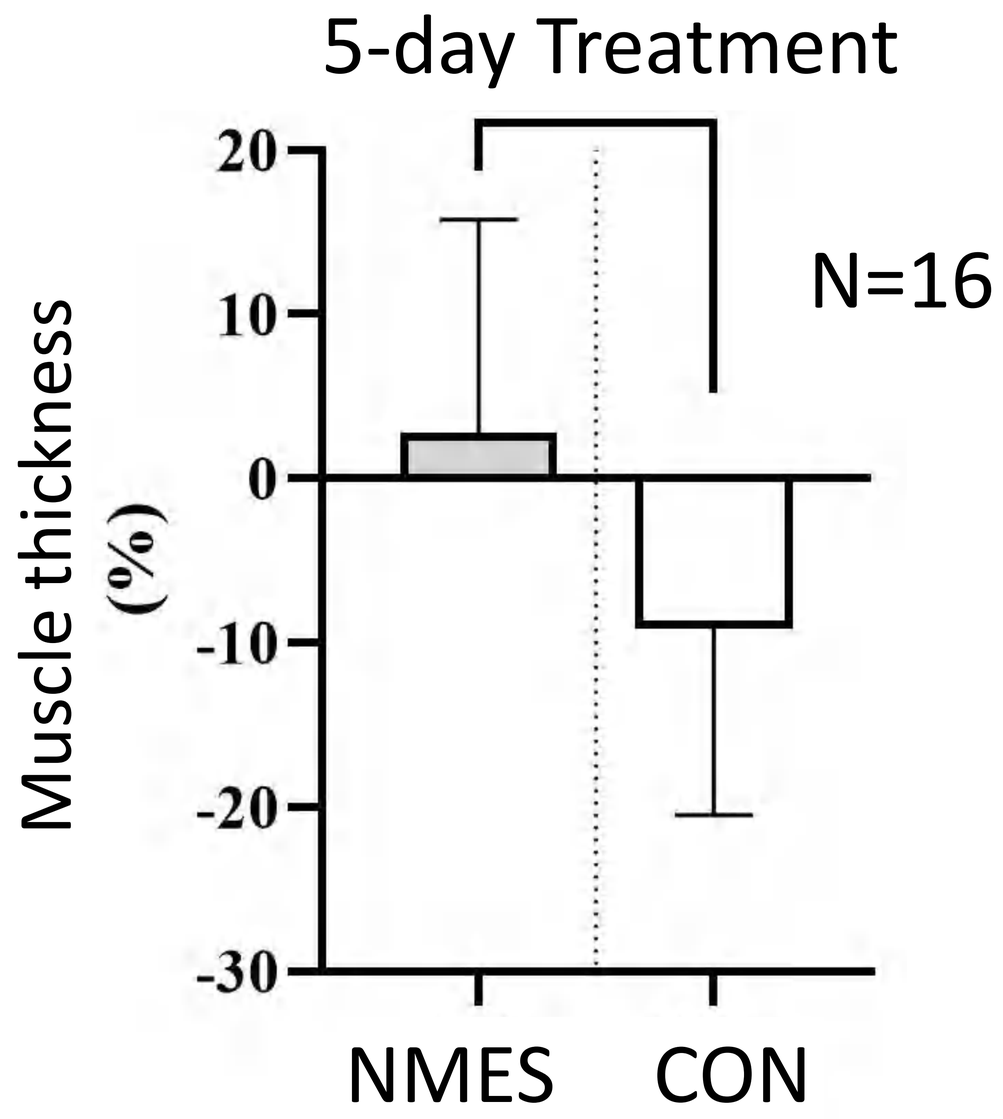
Market
Approx. 320.000 patients/year, ~1.3 mia. DKK/year (DK, SE, UK, DE, NL). (electrodes only)

Vivictum Treatment

Neuromuscular electrical stimulation (NMES) can counteract muscle loss in immobilized patients

Not feasible in the ICU due to time extensive treatment, and impractical disposable electrodes.

Vivictum (PMPS) offers unique electrodes and control system: **Minimal time consumption and training.**



Technology Description

Vivictum is the integration of an automated, adaptive, neuro-muscular electrical stimulation (NMES) device into anti-embolism stockings already used to prevent blood clots during surgery and disease. This solution solves both immobilization complications (muscle loss and deep venous thrombosis), while being very easy to implement in clinical workflows, since compression stockings are already part of standard care. From an operational point of view, it is simply a different box the nursing staff must open.

The unique offering, that makes Vivictum possible is the invention of an electrode that can sit on the skin for a long time, up to several days. Problems with electrical stimulation pads marketed today is that they cannot stay in contact with the skin for extended periods – typically no more than one hour. However, unique insights and inventions in materials design and 3D printing have made it possible for us to design an electrical stimulation pad that allows the passage of air, moisture, and heat, thus enabling the skin underneath the electrodes to naturally regulate its environment. Hence, the electrodes do not irritate the skin.

Intellectual Property Rights

Patent on the unique electrode technology has been filed (WO 2018 206067). The patent is owned by Aarhus University and Region Hovedstaden. Will be licensed to Vivictum.

Team

Entrepreneur, MSc, PhD
Kristian Hennings
CEO

Associate Professor, MSc
Peter Høgh Mikkelsen
CTO

Business Accelerator, MBA
Jón Ingi Benediktsson,
CCO

Assistant Professor, MSc, PhD
Shweta Agarwala
Electrode development

Professor, MD, DmSci, PhD
Charlotte Suetta
Clinical development

Associate Professor, PhD
Jens Vinge Nygaard
Biomechanical Engineering

Current State

- The treatment and the unique electrodes has been developed.
- The efficacy of the treatment has validated in a clinical study on COVID-19 patients.

Business opportunity and Call to action

We are seeking an investment of 15 mio. DKK to bring Vivictum to the market as a Class Iia medical device.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

REGION Bispebjerg og Frederiksberg Hospital

Contact information
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Intended CEO
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Lybe Scientific

High quality diagnostic solutions

Medtech & Diagnostics

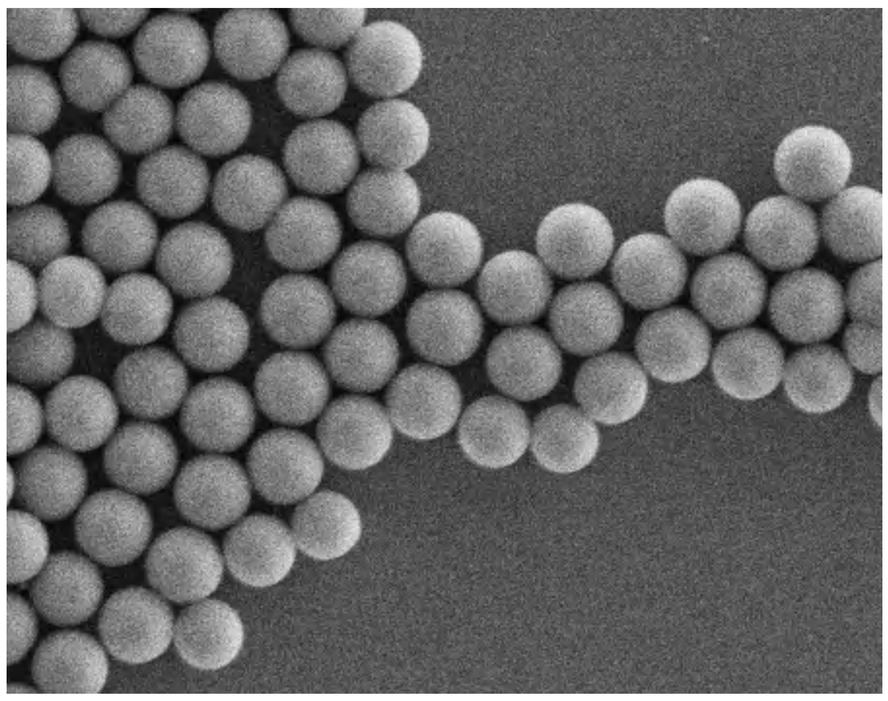

Photo: NTNU Nanolab

Photo: Geir Mogen/NTNU

- Newly established diagnostic company.
- First product, NAxtra, validated for COVID-19 diagnostics (about 9 million units sold in 2020-2021).
- Quality system (ISO13485) for Medical devices established.
- NAxtra marked as CE IVD.
- A total of 23MNOK available from soft-funding and sales in 2021.
- Currently expanding team for sales, R&D and business development activities.

Technology Description

Our first product, NAxtra, is a nanoparticle-based RNA extraction kit currently in clinical use for COVID-19 diagnostics. The technology was developed in collaboration between two strong research groups within molecular medicine, clinical microbiology and chemical engineering at The Norwegian University of Science and Technology (NTNU) in Trondheim, Norway.

NAxtra contains an optimized lysis-buffer for efficient disruption of the virus and magnetic nanoparticles for efficient extraction of the virus RNA. Precise diagnosis is typically confirmed by PCR or similar downstream analyses. Our current technology will be further developed and tailored to other frequently occurring bacteria and viruses. Our key assets lie both in the quality and in novel production methods enabling large scale production and low production costs. Our vision is to be a profitable premier provider of high quality diagnostic products.

Intellectual Property Rights

Lybe Scientific has an exclusive license to the technology via NTNU technology Transfer. The patent priority dates are from April 3rd 2020.

Team

Tonje Steigedal, PhD
CEO

Magnar Bjørås, Professor
CSO

Sulalit Bandyopadhyay, PhD
CTO

Sten Even Erlandsen
Quality Manager

Mårten Wigstøl
Chairman of the Board

Current State

- Recurring sales of NAxtra for COVID-19 diagnostics
- CE IVD marked product
- 23MNOK in soft funding and sales

Next steps:

- Market NAxtra for respiratory, sexually transmitted diseases
- Establish distribution and OEM agreements
- Establish production facilities
- Expand team

Business opportunity and Call to action

Looking for industrial partners and/or investors for further scaling.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

Contact information
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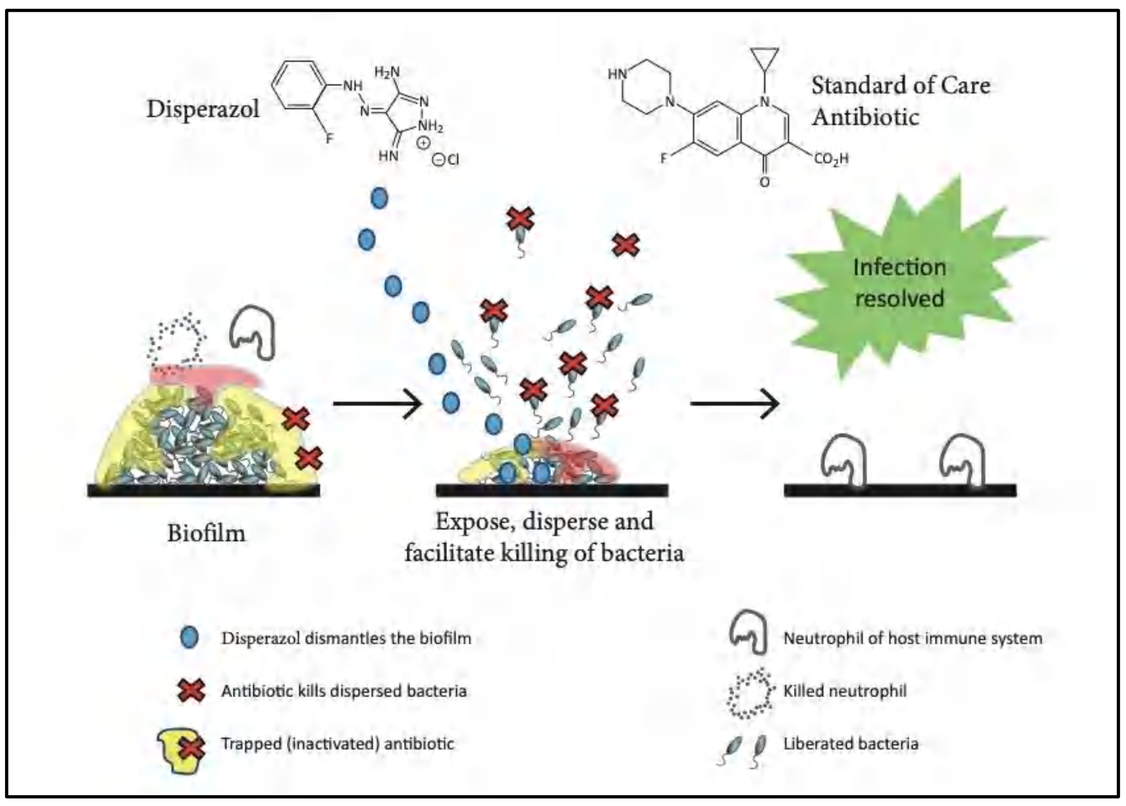
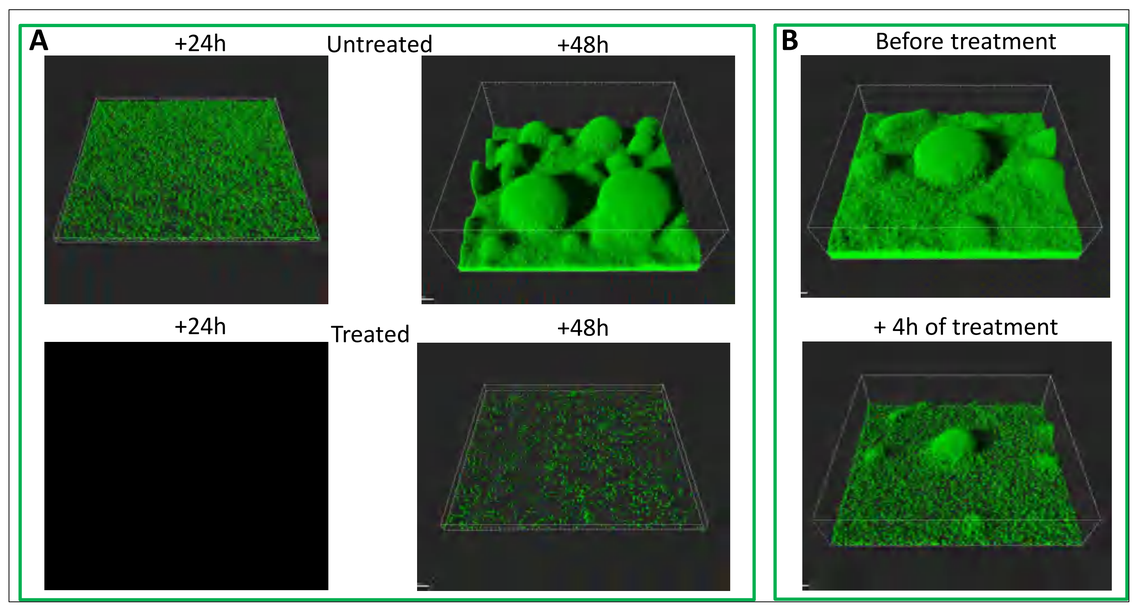
A new approach to clearing biofilms

Biotech & Pharma

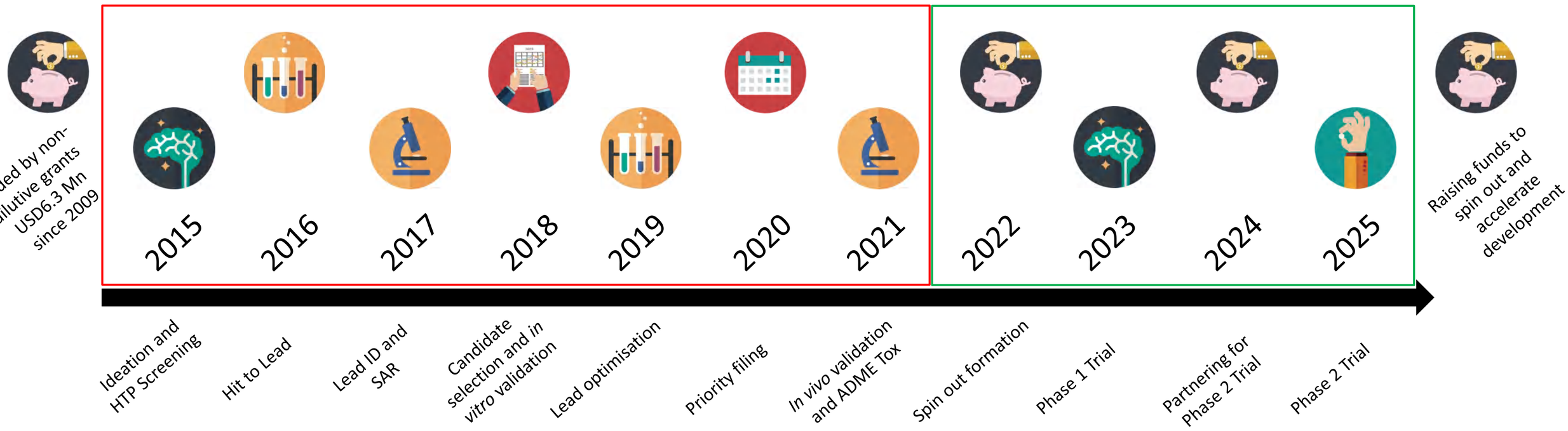
We dissolve and clear *Pseudomonas aeruginosa* biofilms



Disperazol's Mechanism of Action



(A) Disperazol prevents biofilm formation *in vitro* (B) Disperazol disperses biofilms



Technology Description

The combined annual economic burden of EU and US hospital-acquired infections exceeds USD12 Bn. Of these 80% are caused by biofilms and *Pseudomonas aeruginosa* has been linked to 20% of these, leading to 2 million infections and 90 000 deaths per year in the USA alone and costing over USD767 Mn.

Our solution is the drug candidate Disperazol with an entirely new mode of antimicrobial action against *P. aeruginosa* biofilms. Its mode of action is synergistic with that of current antibiotics thereby extending the useful life of antibiotics.

Our aim is to develop a combinatorial treatment that can be used in multiple indications reducing the disease burden on the patient and the financial burden on already stretched healthcare economies.

Intellectual Property Rights

Priority Application was filed on 27th August 2020 and extended as a PCT patent application filed on 27th August 2021.

Team

Dr
Michael Graz
CEO

Professor
Michael Givskov
CSO

Associate Professor
Louise Dahl Hultgvist
COO

Prof MD
Claus Moser
CMO

Actively seeking experienced team members to support the spin out

Current State

We have selected our lead candidate (Disperazol) for the treatment of CAUTIs after an extensive programme of lead optimisation. We have *in vivo* data showing efficacy of Disperazol in clearing urinary tract infections alone and in combination with standard of care antibiotics administered both orally and by IP injection. Furthermore, we have promising early ADME-Tox data.
We are now aiming to complete PKPD and pre-clinical safety toxicology to facilitate an IMP filing for a Phase 1 Clinical Trial.

Business opportunity and Call to action

1. We are seeking investors to support our spin out from 2022, in order to (a) complete the pre-clinical development steps necessary to initiate a Phase 1 clinical trial for CAUTI, and (b) validate other indications such as CF lung infection and ulcerating wounds, and (c) open discussions with partners for clinical development or an early exit.
2. We are seeking investment of USD3.5 Mn to complete point 1, above.
3. We are further seeking support in the raising of our profile to reimbursing agencies to start discussions on payment for the product after marketing authorisation.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

Contact information
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Chief Consultant
Research Innovation
University of Copenhagen
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Digital migraine treatment

Medtech & Diagnostics

Increased quality of life for people with migraine headaches. Reduce migraine days by 50%.

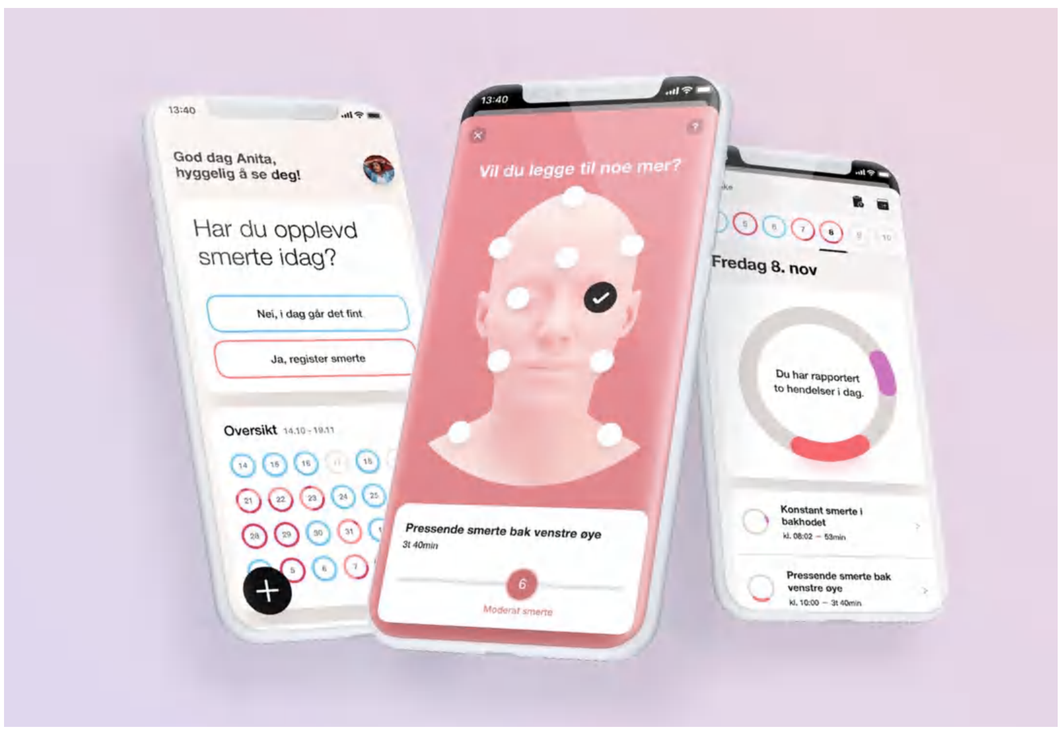
Migraine. An increasing patient population with high unmet needs. There is a lack of non-pharmacological treatments and currently no universal cure.
75% of the patients are women between 20-50 years.

14.7%
Global migraine prevalence

2%
Chronic migraine prevalence

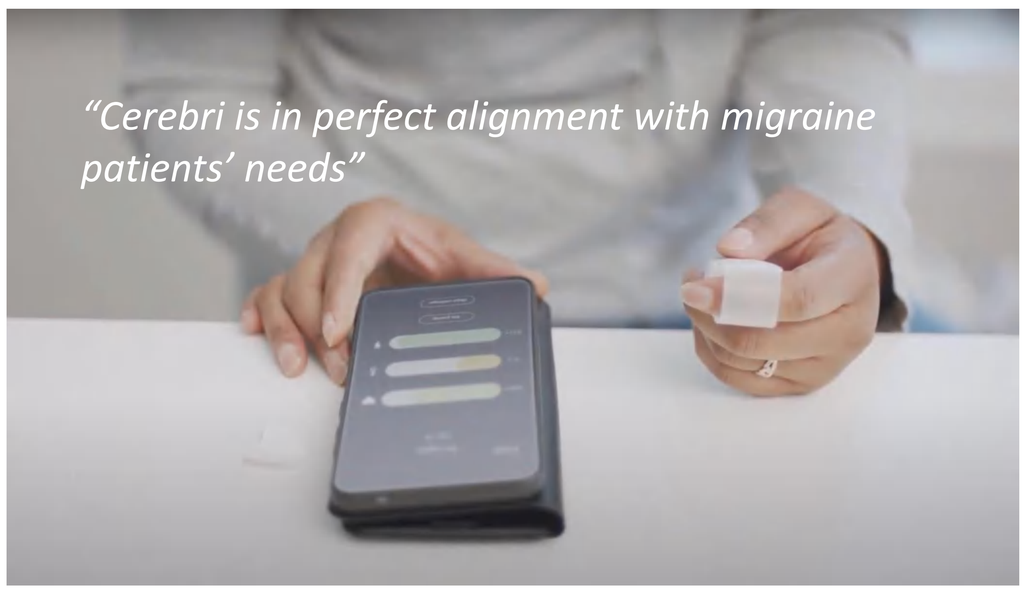
€50B
Annual European cost

Brain Twin is our digital headache diary (mobile app) for patients. Used by 9000 people in Norway.



CEREBRI: Biofeedback treatment
Biofeedback is a method of training the nervous system. Just as you train a muscle to become stronger, you can train your brain and nervous system. This has proven to be an effective way to prevent migraines and is recommended in treatment guidelines.

- Easy to use
- Effective pain relief
- Empowering you to take control



Grants received from

Innovation Norway · The Research Council of Norway · Regionale Forskningsfond Oslo · DIGIBCUBE · Stiftelsen DAM · eurostars™ The Eurostars Programme is powered by EUREKA and the European Community

Project: CEREBRI E115549

Supported by

Aleap for health startups · Norway Health Tech · Microsoft for Startups · NTNU Technology Transfer as

Investors

invenz · STARTUP LAB

Technology Description

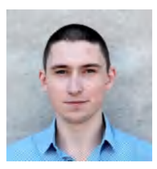
CEREBRI is a non-drug medical device that significantly improves access to biofeedback treatment by using two wireless sensors and personalized, intelligent software. This allows for an easier, and cost-effective way to administer biofeedback that does not require expensive machines or a trained therapist to be present. The innovation can give millions of migraine sufferers access to an effective treatment that is more affordable and available than today's solutions, and without negative side-effects.

Intellectual Property Rights

The technology is protected under the patent UK2008682.3, the PCT extension was filed in January 2021. NTNU and Nordic Brain Tech (NBT) are owners of the IP. Nordic Brain Tech has an exclusive worldwide license agreement with NTNU securing the company exclusive commercial rights to the patent and associated innovation, technology, research and know-how. Future trade secrets for new algorithms, know-how, data analysis and models, data insight, prediction models and personalization will be protected under future patents.

Team

CEO
Cathrine Heuch
NBT


CTO
Marcus Engebretsen
NBT

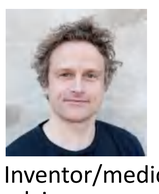
QA/Risk Manager
Jenny Nesje
NBT

AI Lead
Stefan Borg
NBT

Fullstack dev.
Carl M. Rosenberg
NBT

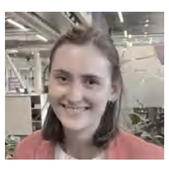
UX Designer
Ingeborg Bersås
NBT

Inventor/medical advisor
Prof. Erling Tronvik
NTNU


Inventor/medical advisor
Assoc.prof. Alexander Olsen
NTNU

Inventor /medical advisor PhD.MD.
Anker Stubberud
NTNU

Lead Designer
Petter Holmboe
NBT


Medical researcher
Cecilie Kingston
Student, University of Oslo

Current State

The CEREBRI product is currently being finalized and we are preparing a clinical trial, starting spring 2022, to obtain data for the CE-mark. We aim to reach the market by Q4 2023.
Brain Twin, our headache diary, has 9000 users and one pilot research customer. Nordic Brain Tech has raised €450,000 from pre-seed investors and business angels, received €2.5 million in grants, and performed poof-of-concept and research since 2015. There are 7 fulltime employees and 3 part-time located in Oslo, with a strong scientific team at NTNU in Norway.

Business opportunity and Call to action

- **Investors:** We seek competent capital from seed investors with knowledge in digital health and medical devices. We seek investors with an international network to help the company grow and scale in Europe and the US.
- **Hospitals:** We will run international clinical trials on episodic and chronic migraine and traumatic brain injury. Please reach out if you are interested in collaboration on clinical trials and research.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

NTNU
Norwegian University of Science and Technology

Contact information
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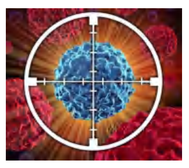
+47 47802121
cathrine@nordicbraintech.no

SEQCURE^NEO

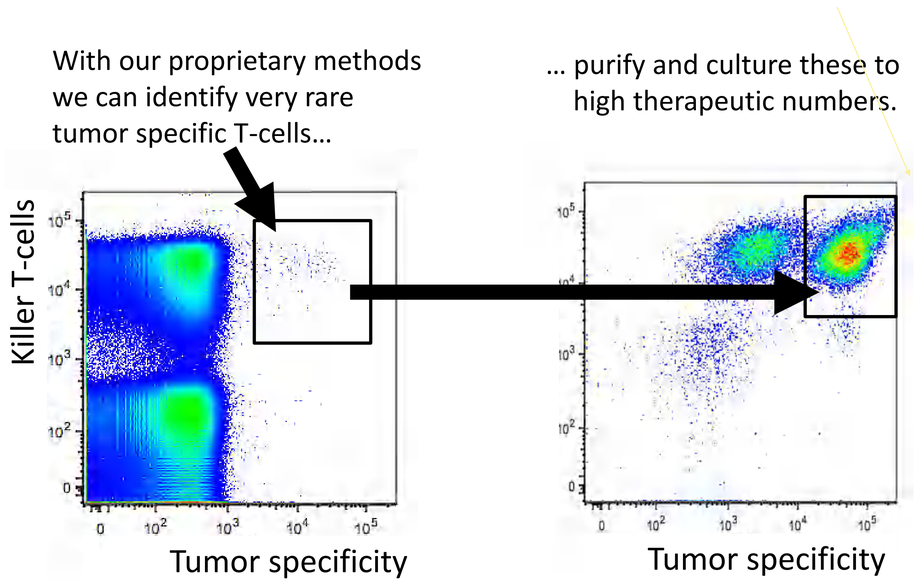
T-cell therapy for **all** cancers.

Biotech & Pharma

Major problems limiting current immunotherapy to only a small fraction of cancer patients is **lack of suitable shared targets** for some therapies (e.g. CAR-T) and **lack of specificity and potency control** for other therapies (e.g. TIL-therapy).



SeqCure immunology AB has taken advantage of the latest science and technological developments and developed methods to overcome these limitations potentially making cellular immunotherapy available to a majority of cancer patients.



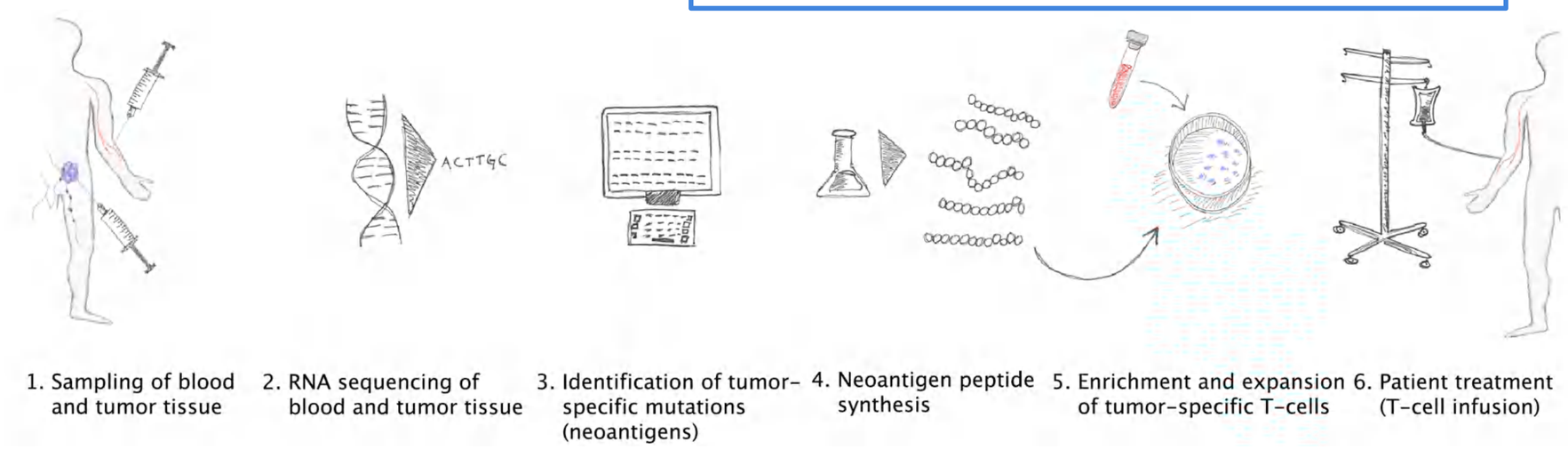
SeqCure^NEO in brief

SeqCure^NEO is a **T-cell product** intended to **cure patients with advanced cancer.**

Our **Unique Selling Points** include:

- **Molecular characterization –** high-resolution DNA/RNA sequence profiling of tumor mutations and tumor tissue environment ensures optimal target selection and treatment.
- **Non-invasiveness** - uses blood, and not tissue, as source material.
- **Multi-clonal** - Both CD8 (“killer”) and CD4 (“helper”) T-cell clones provide a broader tumour reactivity compared to other cell immunotherapy products.
- **Potency control** – product specificity and efficacy and is continuously monitored during manufacturing.
- **Clinical safety** - patient’s own immune cells are selected and expanded - no genetic engineering.
- **Manufacturing scalability -** Modular manufacturing approach is cost-effective, scalable and easily implementable.

- **2022** Process validations, regulatory preparations
- **2023** First-In-Man trial launch
- **2025** Pivotal trial launch
- **2028** Marketing approval (EMA fast-track)



1. Sampling of blood and tumor tissue
2. RNA sequencing of blood and tumor tissue
3. Identification of tumor-specific mutations (neoantigens)
4. Neoantigen peptide synthesis
5. Enrichment and expansion of tumor-specific T-cells
6. Patient treatment (T-cell infusion)

Technology Description

SeqCure^NEO is a multi-clonal autologous T-cell immunotherapy product targeting a number of genetic changes in a patient’s tumor that creates peptides that can be recognized by the immune system.

With a combination of proven technologies and new strategies for T-cell purification and culture we can purify and expand a multitude of T-cell clones (10-30) from a patient to therapeutic numbers, i.e. >10^9 cells. The cells are reinfused in a similar way as proven successful for TIL therapy of melanoma and CAR-T cell therapy of B-cell ALL.

Since we are working with specific T-cell epitopes we are able to maintain an unprecedented control of our SeqCure^NEO cell product during cell culture, both with regards to specificity and potency.

Intellectual Property Rights

An initial patent application covering proprietary aspects of the SeqCure^NEO process has been written together with a patent lawyer with a PhD in Immunology at the global patent firm FISH&Richardson and will be submitted after initial funding is secured.

Team

M.D. PhD.
Vidar Wendel-Hansen
Chief Executive Officer

Associate professor
Robert Wallin
Chief Scientific Officer

PhD
Ludvig Linton
Chief Technology Officer

PhD
Mona Karlsson
Chief Compliance Officer

SeqCure Immunology AB

Nanna Svartz väg 4
171 65 Solna
Sweden
Contact e-mail:
vidar@seqcureimmunology.com

Current State We have, with funding from the founders ,CEO and a business loan, performed experimental verification of the methods in the company’s laboratory at AWL/Innomedicum on the Karolinska campus in Solna, Stockholm. A GMP-optimized protocol will subsequently be developed and transferred to a clean room environment for manufacturing . Documentation required for clinical trial application is compiled in collaboration with regulatory consultants with expertise from advanced medicinal therapies and experience from the European regulatory agencies. Time from funding to initiation of a First-in-Human clinical trial is anticipated to approximately 2 years.

Business opportunity and Call to action

We are seeking investors who want to contribute to taking an important step towards the future of cancer treatment. SeqCure^NEO has the potential to greatly broaden the applicability of T-cell immunotherapy to many more cancer types and thus represents a huge market opportunity.

We are currently seeking an investment of 6.5 MEuro to take us through the first clinical phase, part of which has already been committed.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

Karolinska Institutet Innovations AB

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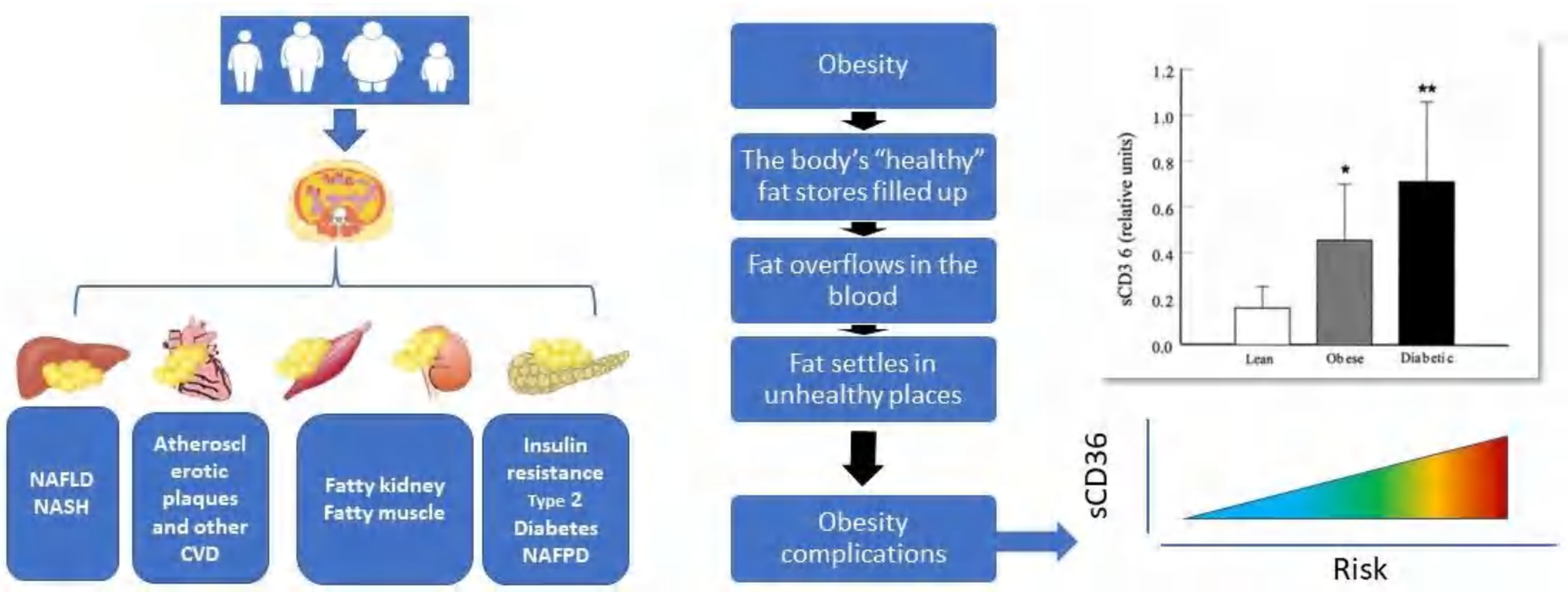
OBCORI-new diagnostic test for assessing obesity complication risk

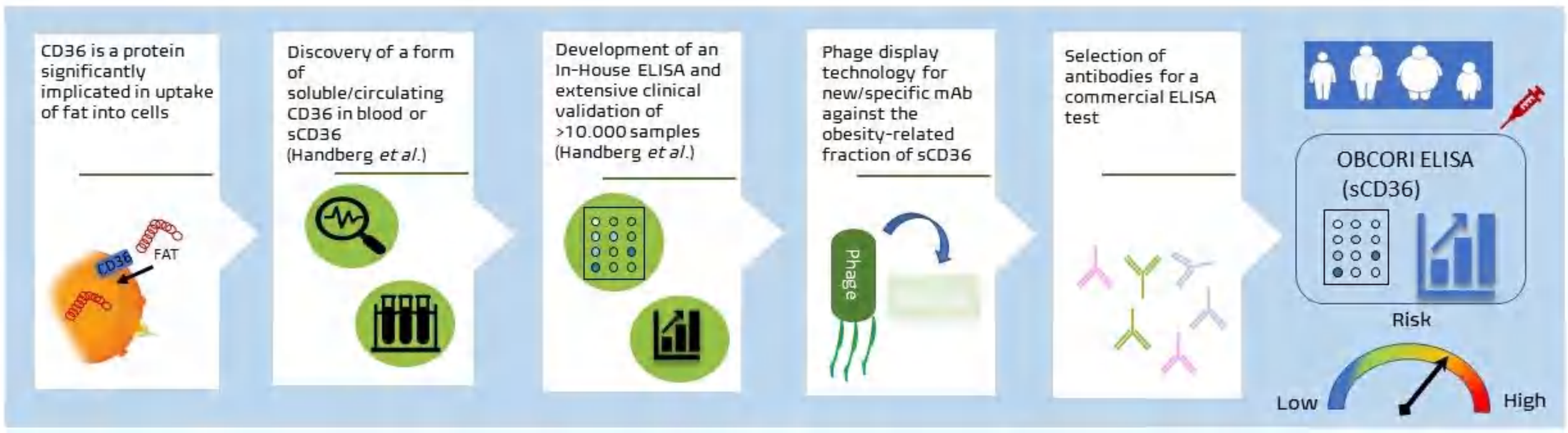
Medtech & Diagnostics

Providing a clinically applicable screening test to evaluate fat deposition complications through sCD36 biomarker

A.- Assessing obesity complications risk through sCD36



B.- Developing OBCORI



A.- Obesity entails the abnormal accumulation of fat in several organs, increasing the risk for complications like Type 2 diabtetes and cardiovascular diseases. We have demonstrated extensively that sCD36 is a key biomarker that relates fat accumulation with the risk of health complications. B.- Our goal is the develop an ELISA kit based on antibodies raised against the obesity-related fraction of sCD36.

Technology Description

CD36 is important for (cellular) uptake of long-chain fatty acids. A soluble form of CD36 was previously discovered and contained in the current invention. We have studied the association between sCD36 levels and important metabolic and cardiovascular diseases and found that sCD36 is a unique biomarker to evaluate the risk for complications due to the abnormal deposition of fat in various organs.

We have developed an in-house ELISA method, but to increase the reaching of this powerful biomarker we need to develop a commercial test, available for clinical use.

A preferred way to develop antibodies for this type of test is through phage display, a microbiology technique that generates monoclonal antibodies, which will increase the specificity of our test.

Intellectual Property Rights

None

Team

MD, DMSC Clinical Professor
Aase Handberg,
aaha@rn.dk

PhD, Associate Professor:
Peter Kristensen
pk@bio.aau.dk

Current State – TRL 3-4

We have performed clinical validations in more than 10.000 samples of our in-house ELISA and we are interested in translating our knowledge into a commercial ELISA test.

We have made previous attempts to produce the right antibodies for this ELISA test, but due to the special biochemical characteristics of sCD36, the best approach is to select the antibodies through phage display. We are close to reaching a prototype through our collaboration with phage display's experts and we have the relevant amount of blood samples for a clinical validation of the test prototype.

Seeking

- Out-licensing
- Co-development
- Research collaboration

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AALBORG UNIVERSITY HOSPITAL

Contact information
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Project Leader
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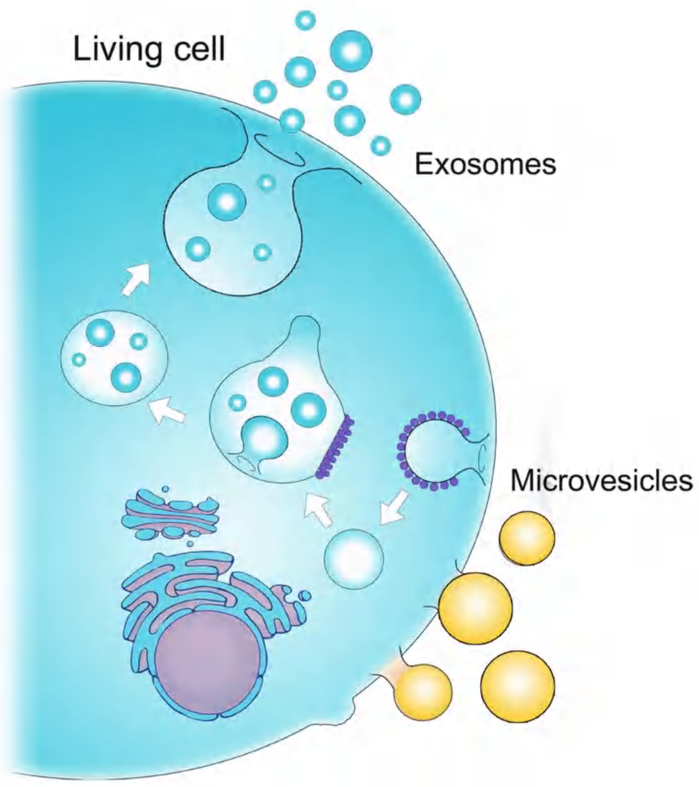
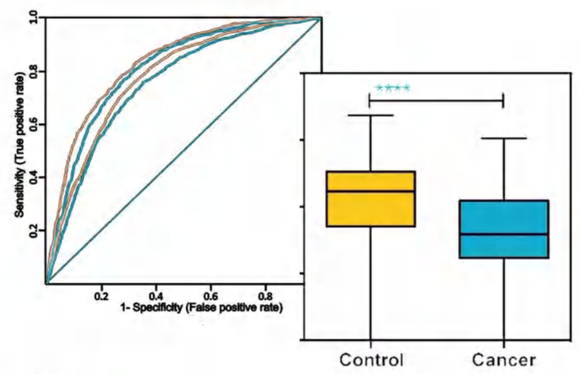
mona@rn.dk

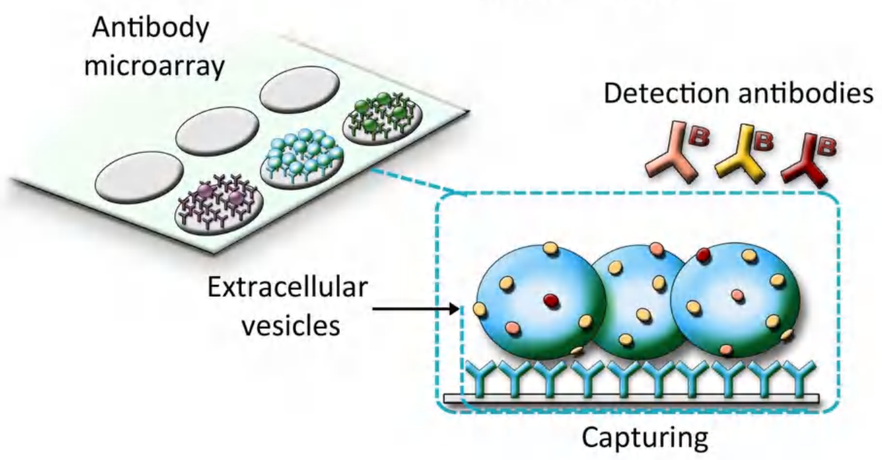
EV ARRAY

Medtech & Diagnostics

High-Throughput Multiplexed Phenotyping Of Extracellular Vesicles (EVs)







EV Array is a **unique biomarker platform** that can exploit the intercellular trafficking in various biofluids to provide a non-invasive method for diagnostics and prognostics.

The apparent role of EVs in a vast number of biological processes, forms the basis of extending EV analysis beyond basic research and into clinical and therapeutic context. The applications of this type of analysis include the areas of diagnostics and prognostics, as well as drug therapy, regenerative medicine, and vaccines. The analysis of EVs could be incorporated as a screening tool and applied to confirm a diagnosis. Furthermore, the EV Array analysis has the potential to become an element in treatment surveillance and companion diagnostics.

Technology Description

The EV Array is based on the technology of protein microarray and allows for the detection and phenotyping of EVs from unpurified starting material in a high-throughput manner. The technology was developed to perform multiplexed phenotyping of EVs in an open platform. The EV Array has been optimized for plasma, but can analyze urine, saliva, ascites, bone marrow, and cerebrospinal-, synovial- and bronchoalveolar fluids as well.

Intellectual Property Rights

None

Team

Ph.D., Senior Scientist
Malene Møller Jørgensen
maljoe@rn.dk

Msc., Research Engineer
Rikke Bæk
rikke.baek@rn.dk

Current State

The current stage of the EV Array technology is a **fully developed analysis** optimized for a small-to-medium laboratory research scale. Several studies has demonstrated the EV Array efficiency in detecting cancers, lung-related diseases (pneumonia, COPD), venous thrombosis, multiple sclerosis and malaria.

Seeking

- Funding
- Research Collaboration
- Sale of services

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AALBORG UNIVERSITY HOSPITAL

Contact information
Monica Recabarren
Project Leader
+45 2013 5459
mona@rn.dk

Sustainability

Surfaces made to kill bacteria and virus

(Cuproxal^{TM}): Aluminium plated with copper

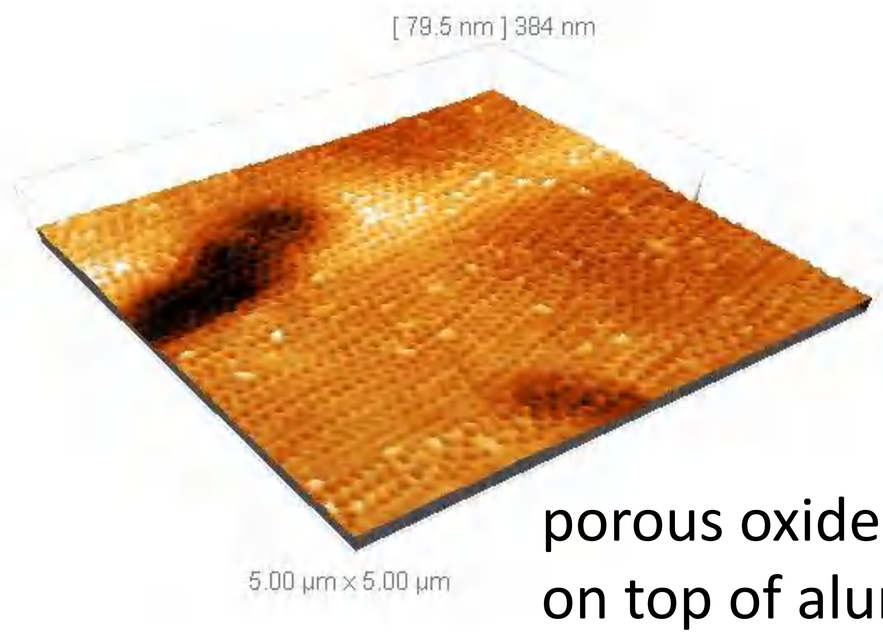
Health sector, hygienic articles, electrical conductors

Mion Technology

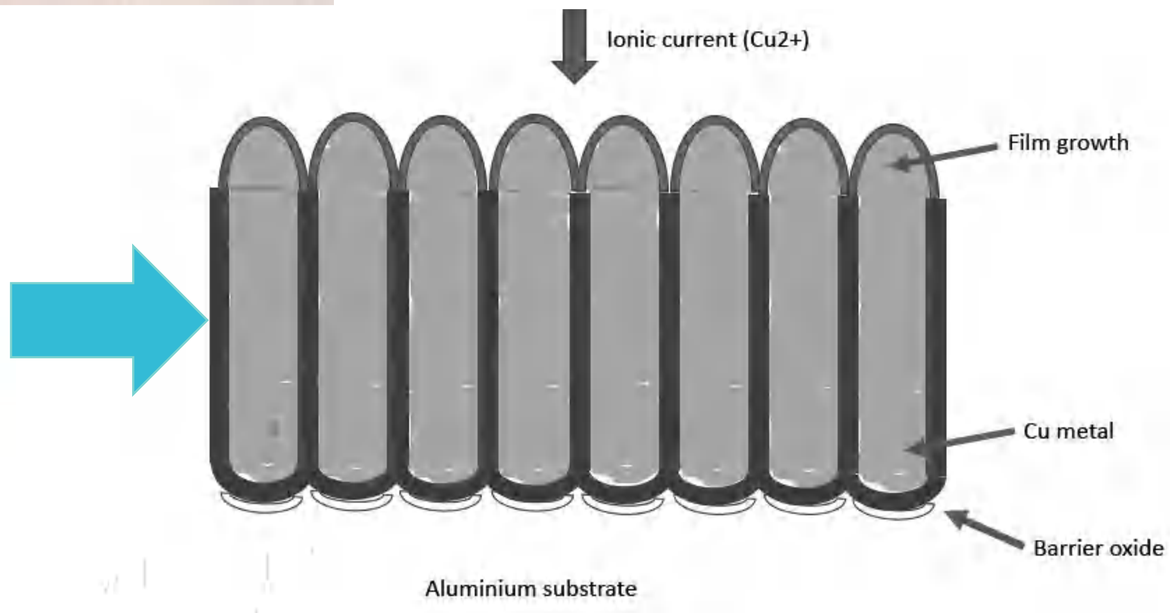
In the public health system, recurring bacterial and viral infections is a huge problem.

Antibacterial surface coatings based on small amounts of copper on aluminium is the best sustainable solution, with 100% efficiency to kill bacteria on dry surfaces.

In high electrical power systems replacement of copper with aluminium would lower costs and CO_2 emissions considerably.



porous oxide
on top of aluminium



filling pores with copper

Technology Description

Aluminum alloys are electrochemically oxidized (also called anodization) in a process tailored to create a well ordered regular porous oxide layer (10 -50 µm deep pores, pore radii around 100 nm). (See image at left above.)

These pores are filled with Cu from a solution of copper sulfate in an electrochemical process. If the filling is stopped at the surface, the resulting surface has the looks and finish of normally processed aluminium.

If the process is continued, a copper film with roots in the pores may form on top of the surface, like shown in the other image above. This film is electrically conducting and is protected from electrochemical corrosion by the oxide layer on aluminum.

Intellectual Property Rights

European Patent No. 20184136.8 – 1103, filed on 06.07.20. covering Europe. Owner: Syddansk Universitet (SDU). A formal collaboration agreement is signed between SDU and the innovation firm Mion AMST ApS for future marketing, licensing and/or sales.

Scientific Coordinator
Per Morgen
SDU / Mion Amst

Board member
Jens Kristian Damsgaard
Science Ventures
Denmark

Project Officer
Bo Nilsson
SDU RIO

Project Manager
Kim Ladefoged
CEO Mion AMST

Finance and Marketing
Jesper P. Olsen
Officer, Mion Amst

Technical support
NN
SDU/Mion AMST

Current State

The agreement between SDU, Science Ventures Denmark and Mion AMST calls for fabrication of specific functioning prototype items, such as toilet buttons, door handles and for documentation of the antimicrobial effects, life-time estimates, process costs and estimates of upscaling costs and parameters (voltages and currents, and chemicals a.o.). Protype production to this effect is underway with a generous donation from Energi Fyn, which enables the setup of a medium scale production line and also collaboration with standardization institutes in DK and abroad.

Business opportunity and Call to action

First-mover customers (like hospital equipment manufacturers) are invited to participate in the production and refining of the processes for functioning prototype equipment as presently available at SDU. Interested anodization companies who would like to test the process are also invited to participate in the next phase of developments about scaling-up of the process, and to obtain licenses to use the process, or to buy exclusive rights from SDU/Mion AMST.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

Contact information
Per Morgen
Dr. scient.,
Emeritus, SDU
+4522723529
permorgen@sdu.dk

BIOOMIX

SOLUTIONS FOR A SUSTAINABLE FUTURE

Bioomix is a biotech company based in Odense. We are developing all-natural microbial products that can help farmers achieve a higher and better yield with fewer chemicals and emissions.

Bioomix's organic products prevent seed borne infections and improves germination success, germination speed and plant growth without the use of chemicals. Our vision is to eliminate the use of pesticides, antibiotics and synthetic fertilizers in agriculture.

With our products, we are aiming at the large ($9 billion) and rapidly growing (14% CAGR) market for agricultural biologicals.

We participate in Bioinnovation Institute's Venture Lab program and have secured our first investment.

Our microbes are capable of killing resistant bacteria and plant pathogenic fungi

E. coli ("ESBL") plate

E. faecium ("VRE") plate

S. aureus ("MRSA") plate

Z. tritici ("Septoria") plate

Technology Description

We use the microbeTRAP to discover our microbes. It is a 3D printed biomaterials device that creates selective and competitive microenvironments for targeted in-situ capture of microbes with desirable functions. Bioomix then turns these microbes into novel products.

Intellectual Property Rights

The microbeTRAP technology is protected by a PCT patent application filed 12 March 2021.

Team

CEO
Morten Østergaard Andersen

COO
Julia Magdalena Andersen

Business Developer
Currently Hiring

Fermentation Specialst
Currently Hiring

Plant Specialist
Currently Hiring

Current State

- We are testing our lead product on different crops in various cultivation settings
- We are setting up a research and production facility
- We are working on lead product formulation
- We are investigating and developing business cases for our lead product

Business opportunity and Call to action

- We are looking for investors as we want to raise a follow-up investment round of 4M DKK
- We are looking for academic and commercial collaborators
- We are hiring to add to our team

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

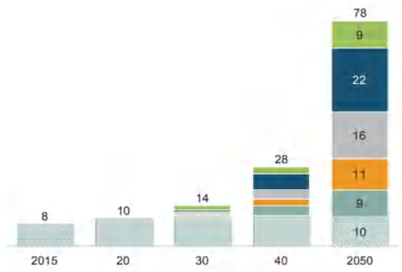
Contact information
Morten Ø. Andersen
CEO, Bioomix
+45 52114513
moa@bioomix.com

Environmentally friendly metal catalyst recovery to support sustainable energy development and waste management

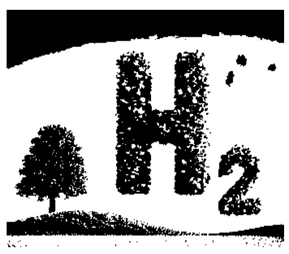
Sustainability

CRIMAREC
Critical Material Recovery

Problem Statement

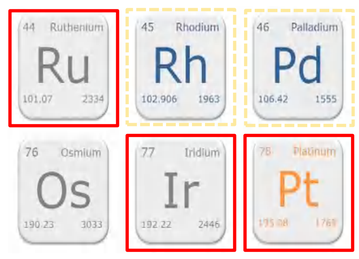


Hydrogen demand could increase **10-fold** by 2050



Current **fossil H_2** production associates large CO_2 emission.

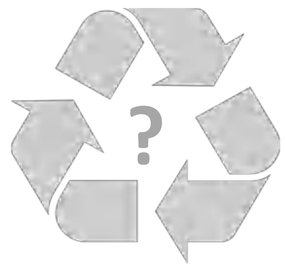
Clean H_2 production is achieved by **electrolysis**



Platinum group metal (PGMs) are key component for electrolysis

PGM demand could increase ~30 times, which can not be handled by **mining**

PGM recycling is the best solution



Current process **pyrometallurgy**, is not feasible for large-scale electrode recovery, due to **huge emission**

Value Proposition

We directly extract PGMs from end-of-life products in a sustainable way!

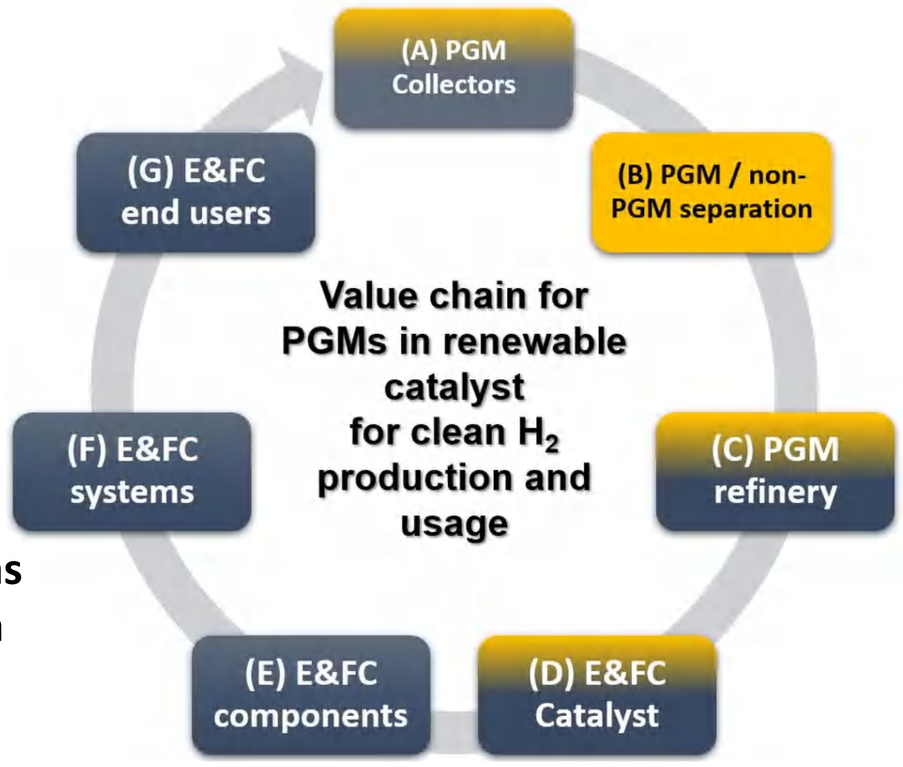
Registered IPs and exclusively licensed by CriMaRec

Providing the missing technology for the growing market

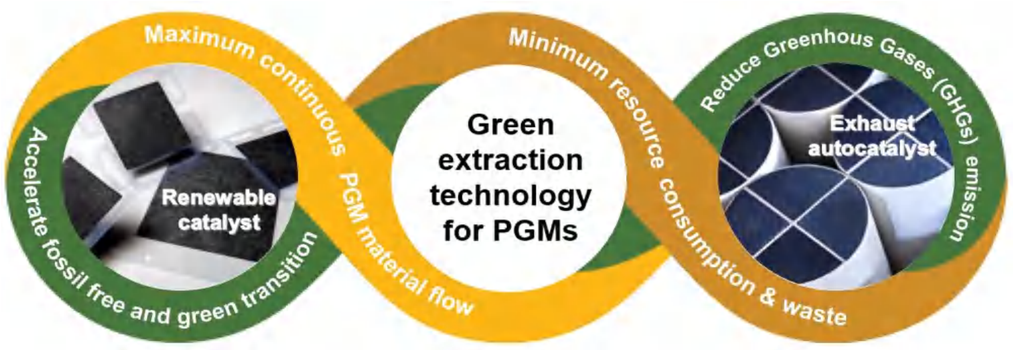
Up-scalable through classic engineering process

Economically viable technology

Environmentally friendly PGM recovery process



E&FC: electrolyzer & fuel cells



Especially silicon carbide based autocatalyst and gas diffusion electrode have a huge demand for the technology with market demand accumulation!

Technology Description

- The technology to be further developed and upscaled is a hydro-electrochemical route to dissolve and process metal catalysts directly targeting PGMs of high surface area.
- The dissolution is carried out in aqueous solutions using well-selected combination of mild, inexpensive chemicals with efficiency up to 99%.
- The kinetic can be further improved with additives or product-removers to reduce re-deposition or passivation.
- The process is flexible, easy and fast, which can be customized and combined towards individual demands.

Intellectual Property Rights

- The patent application is in PCT phase.
- The associated IPRs including technology knowhow are exclusively licensed by CriMaRec.

Team

PhD in Chemistry
Shuang Ma Andersen
CTO / Co-founder

Principle investigator in energy material and production process. Industrially applied research covers electrocatalyst, electrode structure and specialized in PGM catalyst recycling. Experienced in management, dissemination & collaboration

MBA
Lars Christian Larsen
CEO / Co-founder

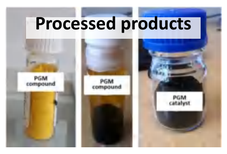
25 years' experience in industrial catalyst market for diesel vehicles using PGMs, solid knowledge in business. Wide network in autocatalyst industries and engineering partners, OE project management in Europe, Russia, US and China.

MBA
Jens Kristian Damsgaard
Chairman of the board

Co-founder of several tech university spin-outs funded by venture capital. The spin-outs were either acquired their technology was licensed by corporates.
Skilled in technology transfer, venture & corporate venturing.

Current State

The technology is in trial operation of small scale with a few liters size.
TRL 4, targeting to achieve 7 in the coming year



Business opportunity and Call to action

The technology is especially developed towards silicon carbide based autocatalyst and fluorine containing gas diffusion electrodes. CriMaRec is currently participating a large EUPD project and prepare to establish more soft funding.
We are looking for Investors: Business angels or pre-Seed/Seed VCs.
Corporate partners: existing companies that would work with us on either the technology side or the commercial side.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

Contact information
Lars Christian Larsen
CEO CriMaRec
Tel: +45 2933 1503
E-mail: lcl@crimarec.com

EcoDrone

Complete delivery system

Pollinating insects are dying off because of chemical pesticides.

This massively harms biodiversity and threatens food security.

One way to replace chemicals is via live beneficial insects that eliminate pests.

We aim to offer a complete UAV-based delivery system for automated distribution of live beneficial animals, thereby lowering cost, improving effectiveness, market adaptation and food security.

Technology Description

UAV based delivery system for live beneficial insects and bio chemicals.

Intellectual Property Rights

Mechanism for dispensing biological material	PCT/EP2020/062588
Drone for dispensing biological material	PCT/EP2021/065925
Blower head for providing a wide-angular airstream and drone using such a blower head for dispensing biological material	EP 21179192.6 (June, 2021)

Team

Niels Ohlsen
EcoDrone

Mikkel Pedersen
EcoDrone

Current State

We are testing with multiple partners and potential future customers this fall as part of our Innovationsfonden funded project. Development of autonomous flight ongoing. Start-up expected to launch early 2022.

Business opportunity and Call to action

We shall create a spin-out that will mature the technology and keep developing partnerships. We are looking for investors to help accelerating our development.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

Contact information
Bo Nilsson
Business Developer
+4524984117
nilsson@sdu.dk

Drones4Energy

Drones charging from powerlines
Drones autonomous operated in swarms
AI picture analysis

Digitisation, AI & Robotics

Disrupting powerline inspections

We offer a disruptive and robust solution to a longstanding problem in managing electricity grids and networks.

Our drones are charging from the powerlines. They fly autonomous and they fly in swarms. And they will cut your inspection costs in half.

Our drones will charge directly from the powerline.

They fly autonomous on pre-defined flight paths and according to your needs.

They fly in swarms of up to 4 drones

Videos of the powerline inspection will be recorded and sorted by onboard cameras and computers.

Data will be transmitted from the drones to your or our data servers.

Advanced AI software running on your or our data servers will perform final analysis. It will provide you with tailor made report fully in compliance with legal demands and your business needs

Technology Description

- a unique charging technology (hardware and software) that allow the drone to charge from powerlines.
- Software that allow autonomous flights and operation of drone swarms
- AI technology that analyse pictures and videos captured by cameras mounted on the drone

Intellectual Property Rights

- Several patent applications has been filed on core technology
- Core technology inlicensed from Fraunhofer (DE), SDU (DK) and Aarhus University (DK)

Contact

Drones4Energy
Jens Damsgaard
jkd@scienceventures.dk
+45 31 787 780

Current State

We are operating (flying) advanced prototypes in collaboration with potential customers. Flights are conducted around HCA Odense at 1.1 powerline set-up

In operation

Business opportunity and Call to action

Company is under incorporation.
Initial shareholders will be FOUNDING TEAM, Fraunhofer (DE) and Science Ventures Denmark A/S (DK).

We are looking for founding partners, investors and team members.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

Contact information
Jens Damsgaard
+45 31 787 780
jkd@scienceventures.dk

autoMINDS

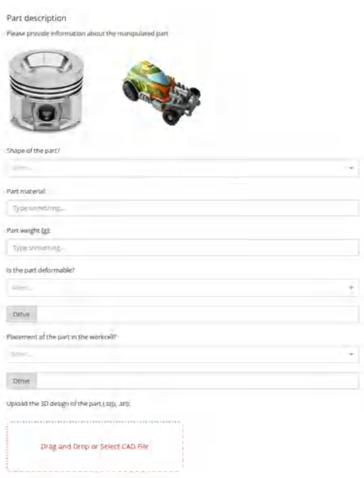
Advanced Production & Technologies

Automatic finger design for robotic applications

gripWEB™ software

Objects provided by the end user

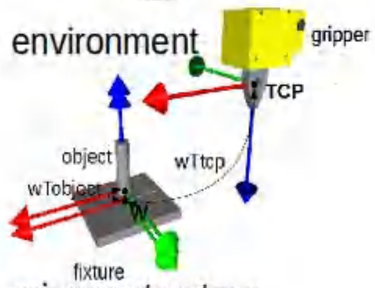
Web interface to customers



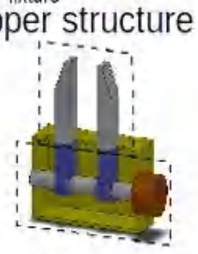
Input data processing

- object model

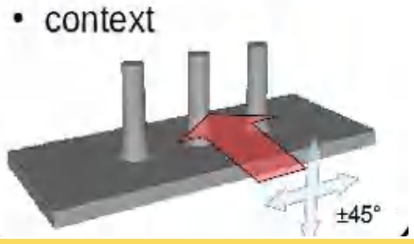
- environment



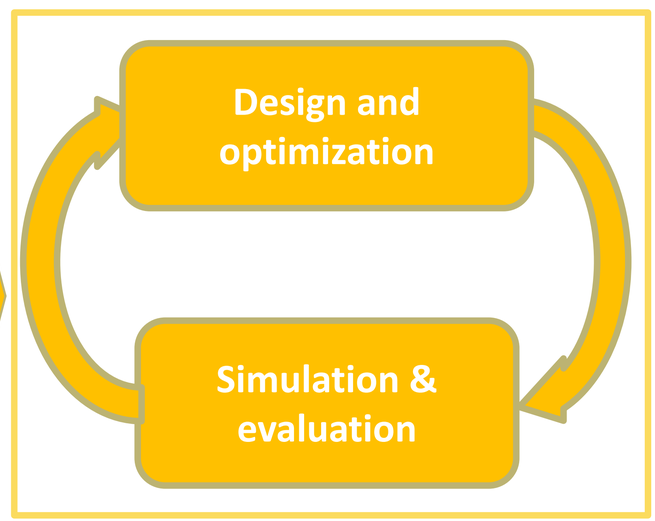
- gripper structure



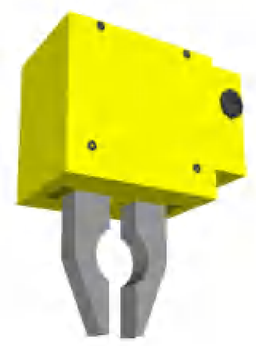
- context



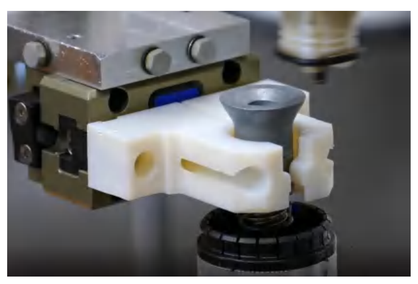
gripSIM™ software



Final optimal finger design solution



Manufacturing and implementation in the production process



Technology Description

We have developed a patent pending technology "**gripSIM™**" and "**gripWEB™**", aimed for efficient design of task specific gripper fingers for various robotic applications.

The technology provides an intuitive software solution for designing robotic gripper fingers as well as a simulation and optimization procedure to evaluate and optimize the designs. The output of the method represents a set of optimal finger geometries ready for production. Our method eliminates the need for conventional trial and error *design – manufacture – test – redesign* procedures of developing gripper fingers, which under normal circumstances takes several days and are costly.

Intellectual Property Rights

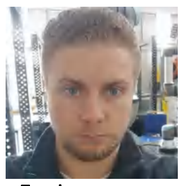
The technology is protected by the PATENT APPLICATION: EP3694693 - DESIGN OF ROBOT GRIPPERS AND FIXTURES FOR ROBOTIC MANUFACTURING filed 12.10.2018

Team

Assistant professor
Aljaz Kramberger

Professor
Norbert Krüger

Researcher
Adam Wolniakowski



Engineer
Anders Prier Lindvig

Post doc
Frederik Hagelskjær

Business Developer
Bo Nilsson

Current State

The technology was tested in various domestic and European projects focusing on flexible automation of industrial processes, where actual companies for example LogicData, Precizica metal, etc. provided use cases for which specialized gripper fingers were designed, manufactured and used in production. The project is currently at TRL 6 and we are working on developing a service-oriented business structure, where we can provide our gripper finger design service to the companies.

Business opportunity and Call to action

We are looking for partner companies for firstly testing our finger design service and secondly investors for bringing the technology to the market, with establishing a spinoff company.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

Contact information
Bo Nilsson
Business Developer
+4524984117
nilsson@sdu.dk

Targeted Auger Radiotherapy: A new drug class to cure glioblastoma

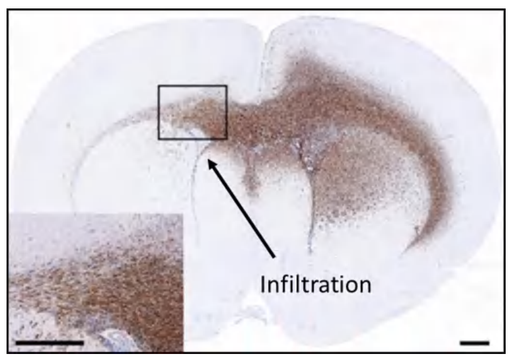
Biotech & Pharma

A cost-effective and easily implementable new treatment to substantially improve the prognosis for glioblastoma patients

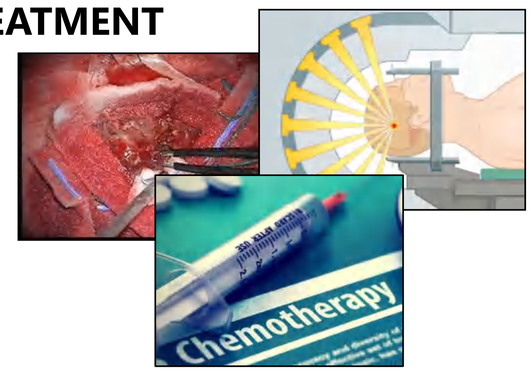
GlioTherapeutics | Pending Startup

A LARGE UNMET NEED

EXISTS FOR GLIOBLASTOMA TREATMENT



Glioblastoma spreads by infiltrating the brain



Current treatments cannot kill infiltrating cells

GLIOBLASTOMA IS A DEATH SENTENCE

VALUE PROPOSITION

To patients:

- ✔ Substantially **extend current median survival** with GBM
- ✔ Potentially curative
- ✔ Ca. half of all GBM patients will be treatable. Biopsy possible
- ✔ Few side-effects

To investors:

- ✔ Large market and great profit margins
- ✔ Limited competition and orphan drug designation

To physicians/hospitals:

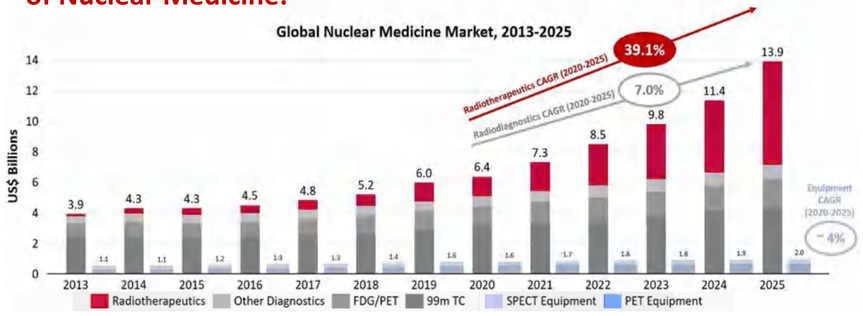
- ✔ Easily **implementable in standard care**, as adjuvant after surgery
- ✔ Cost-effective
- ✔ Practical handling (*short half-life*)

MAJOR PHARMA COMPANIES with radionuclide therapy R&D programs

BAYER, NOVARTIS, mAbs Therapeutics, Inc., TELIX PHARMACEUTICALS, Lantheus FIND > FIGHT > FOLLOW™

Source: "Drugmakers go nuclear, continuing push into radiopharmaceuticals" Nature Biotechnoclogy, 2021

Radiopharmaceutical therapies (Radionuclides) are an opportunity for the growth and relevance of Nuclear Medicine:



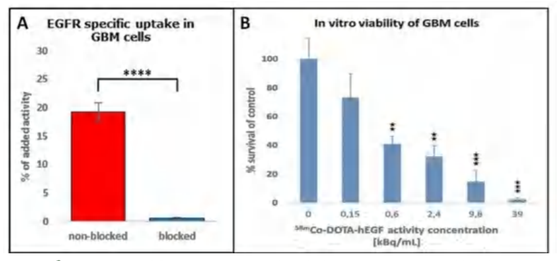
Source: 2019, MEDrays Intell Nuclear Medicine World Market Report and Simens

RADIONUCLIDE THERAPIES ARE ENTERING MAINSTREAM ONCOLOGY

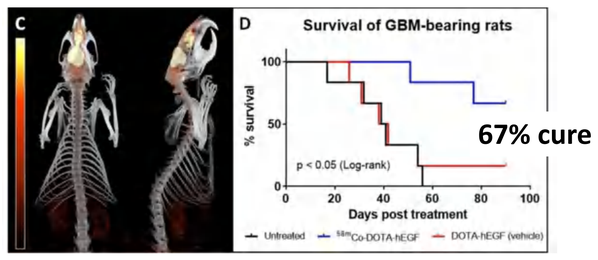
HIGHLY EFFECTIVE COMPOUNDS

AGAINST GLIOBLASTOMA

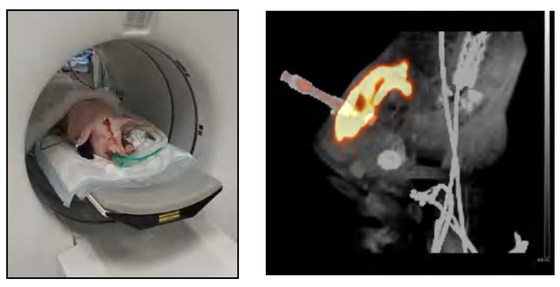
PROOF OF CONCEPT:



✔ *High efficacy in glioblastoma cells lines*



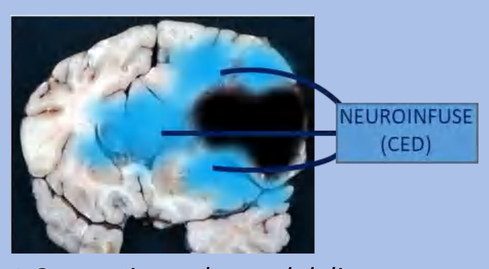
✔ *High efficacy in a rat glioblastoma model*



✔ *Excellent intracranial retention and biodistribution in pigs*

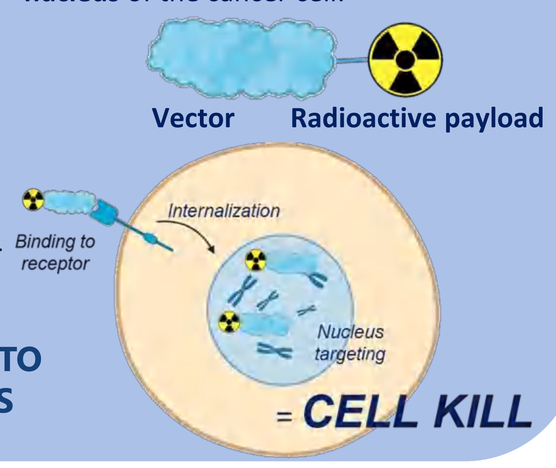
HOW IT WORKS:

1. Bypassing the blood-brain-barrier:



✔ *Convection enhanced delivery (CED) bypasses the blood-brain-barrier*

2. The "vector" **binds to the cancer cell** and transports the radioactive material **into the nucleus** of the cancer cell:



OUR THERAPY IS TAILORED TO KILLING INFILTRATING CELLS

Technology Description

Glioblastoma is the most common and most aggressive primary brain cancer. As it spreads by infiltration in the brain, it is currently impossible to remove the whole tumor. Therefore, glioblastoma kills essentially every afflicted patient. We have developed a new radiopharmaceutical and administration method, which can target infiltrating glioblastoma cells. Our compound is delivered directly into the brain tissue after the main tumor has been removed by surgery. It then binds to remaining infiltrating cells and delivers specialized radioactive atoms into the core of these cells, where the DNA is located. By radioactive emission of a shower of electrons, the DNA of the cancer cell is destroyed, killing the cancer cell. In this way, we will revolutionize current glioblastoma treatment and substantially extend patient lives, perhaps provide a cure.

Intellectual Property Rights

For strategic reasons, patent application submissions is planned for early 2022, based on a positive patentability assessment performed by Høiberg, European Patent Attorneys.

Team

Future Co-founder
Helge Thisgaard, PhD
Assoc. Prof., Medical Physicist (SDU/OUH). Research group leader

15 years of experience in Auger radiotherapy research, radionuclide production and preclinical glioblastoma models.

Future Co-founder
Andreas I. Jensen, PhD Pharm
Radiochemist (DTU)
Research group leader

12 years of experience in radiochemical research, drug delivery and design of radiopharmaceuticals

Clincal Advisor
Bo Halle, MD, PhD
Neurosurgeon (OUH)
Clinician (end-user)

15 years of experience in the clinical management of glioblastoma, and research in CED and glioblastoma.

Current State

Our lead candidate has strong *in vitro* and *in vivo* efficacy data, with a 67% cure rate in a rat glioblastoma model as a stand-alone treatment. Next steps are toxicology studies (GLP) and GMP production establishment, followed by first-in-human trials, expected to commence in Q2 of 2024. The program is currently at TRL4.

Business opportunity and Call to action

The program is still based at the research institutions; DTU, SDU and RSD. But in early 2022, upon expiration of our current Innovation Fund funding, we will found a new spin-out to further mature the program. For exclusivity, we plan to obtain orphan drug status for our treatments, for which glioblastoma qualifies. We are currently seeking: (1) investors to enable production of our drugs in GMP quality and initial clinical phase I/II trials. (2) an individual with a proven drug development track record to join us. On the longer term, we seek industrial partners to carry out the full clinical development program.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

DTU
Region of Southern Denmark
OUH Odense University Hospital
SDU

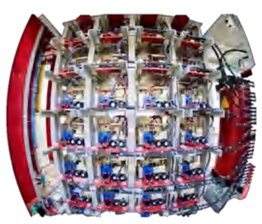
Contact information
Andreas I. Jensen
Future co-funder
Mob. +4520126187
atije@dtu.dk

innocell

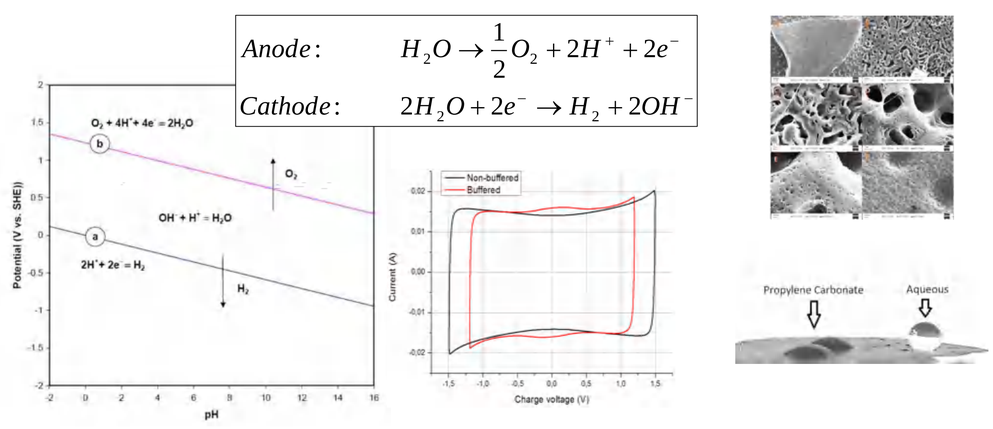
Sustainability

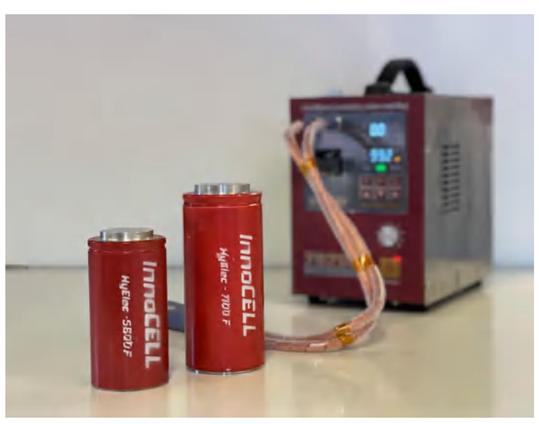
Next generation of Supercapacitors for Energy Storage

Cost-effective supercapacitors based on groundbreaking electrolyte and manufacturing technology



Efficient, fast, high-power, durable and sustainable energy storage.





From new insight and materials technology to more cost-effective energy storage to help transition towards renewable energy.

Technology Description

As a part of a research project at SDU, a new type of electrolyte for supercapacitors was invented. This electrolyte is water-based, cheap and environmentally friendly but offers performance competitive with state-of-the-art organic electrolytes when used in supercapacitors. This technology has then been transferred to a spin-out company, InnoCell, and in a few years developed into a production mature technology.

Intellectual Property Rights

InnoCell owns the following patents:

1. WO2018001430 - A SUPERCAPACITOR AND A METHOD FOR EXPANDING THE VOLTAGE RANGE OF AN AQUEOUS ELECTROLYTE SUPERCAPACITOR
2. WO2018108994 - ELECTROCHEMICAL AND CAPACITATIVE ENERGY STORAGE DEVICE AND METHOD OF MANUFACTURE

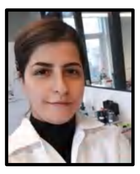
Team

Chief Executive Officer
Steffen Thrane Vindt, PhD

Board Member
Jørgen S. Lundsgaard, PhD

Chemical Engineer
Thor Høybye

Chief Technological Officer
Steen Yde-Andersen



R&D Scientist
Masumeh Hashemi, PhD

Production Engineer
Alexander T. Vindt

Current State

The pilot production of the first large cell hybrid electrolyte supercapacitor is currently under development and expected to be in action by the end of 2021. Several new prototypes are also in development.

Business opportunity and Call to action

We are looking for investors for next round funding of production scale-up and we are looking for relevant corporates for collaborative development.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

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LT Health

Medtech & Diagnostics

We are on a mission to change the paradigm around fatty liver disease to ensure timely identification and avoid disease advancement.
Starting with empowering general practitioners to make the right clinical decisions.

Say Hello to Henry!

In 2018, he was diagnosed with Cirrhosis as a result of struggling with overweight and type 2-diabetes for a long time. At this point of time, the damage was irreversible.

Unfortunately, Henry is only one out of many!

Fatty liver disease is the global liver pandemic that nobody is talking about

- **Lack of awareness**
- **Hidden disease**
- **No/poor diagnostic methods**
- **Limited treatment options**

Patient Funnel

Today

Individual / patient

- **25%** of the population in the developed world have FLD.
- **25%** of type 2-diabetics have advanced to NASH
- **+1,200,000** annual deaths from fatty liver disease

General practitioner

- **52%** of referrals are false-positives (ALAT)
- **75%** of end-stage FLD patients are identified too late
- **85%** dies within 5 years when diagnosed with FLD end-stage

Secondary care

- **+100B USD** annual medical cost of FLD in the US alone
- **2-3x** more expensive than similar reference diseases

To-be

Individual / patient

- Target high prevalence risk groups (type 2-diabetics, overweight and excessive alcohol intake)
- Provide personalised and tangible light screening at home

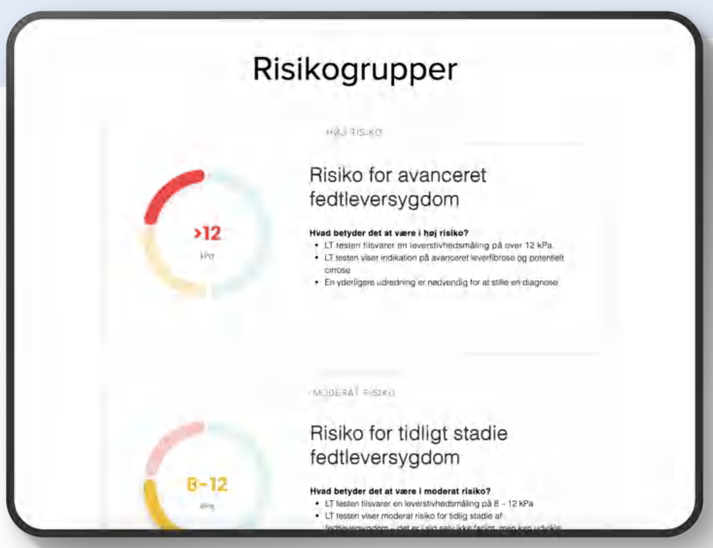
General practitioner

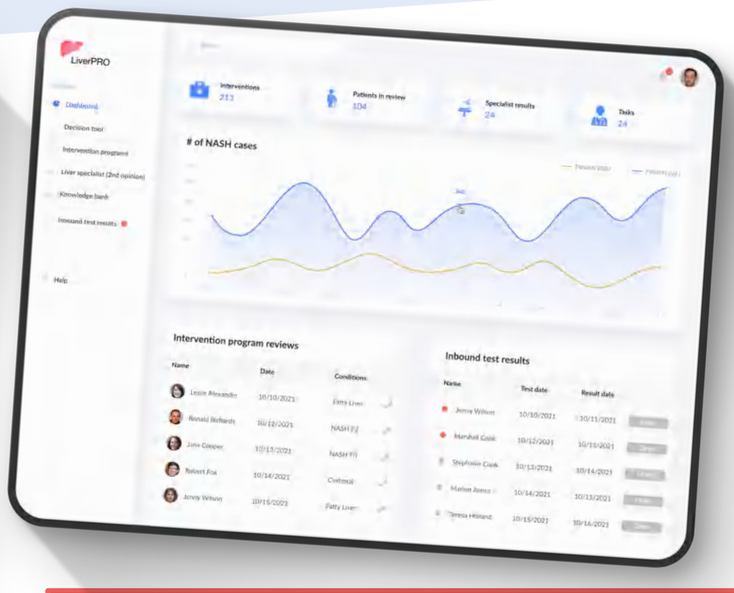
- Empower GPs with clinical decision support and specific patient recommendations
- Provide liver expertise on demand and enable patient outplacement

Secondary care

- **87%** Reduction in over-referrals
- **+10x** Increase in timely identified FLD cases
- **25%** Reduction in total medical cost of FLD
- **50%** Reduction in advanced FLD cases

LiverPRO has the potential to…





LT Health is sitting on one of the keys to significantly improve the FLD challenge

Technology Description

The original idea for this project was founded at the elite research center, FLASH, at Odense University Hospital (OUH). Here an algorithm was developed in 2016 based on high quality research data from a large liver biopsy controlled clinical trial. This algorithm is the technological foundation and a key enabler behind the development and success of this project. It will allow clinicians to immediately obtain the patients' estimated risk of having liver fibrosis. The algorithms amalgamate all the best performing combinations of the variables linked to FLD.
The algorithm utilizes already available blood samples which ease implementation and keep the cost low. In other words, it make significant more out of the data that is already available.

Intellectual Property Rights

Patent application submitted to the European Patent Office.

Team

Co-founder and CEO
Taus Holtug
LT Health

Co-founder and CMO
Katrine P. Lindvig
LT Health

Scientific Co-founder
Maja Thiele
Ass. Professor, MD. PhD

Scientific Co-founder
Aleksander Krag
Professor MD. PhD. MBA

Current State

LT Health is in the development of the clinical decision support tool LiverPRO.

Current focus is on:
- regulatory approval
- fundraising (soft-money for clinical validation and user feedback)
- building the team (CTO + QA)

Business opportunity and Call to action

LT Health is in the process of building the foundation to bring our break-through technology to market and change the course of FLD.
This is an opportunity for you to:
- Join the team
- Support our mission with your know-how
- Initiate a dialogue about strategic partnerships (corporates)
- Take part in our journey as an investor

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

Region of Southern Denmark
OUH
Odense University Hospital

Contact information
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Biotech & Pharma

DARETherapeutics

Next generation biological therapeutics for blinding retinal disease

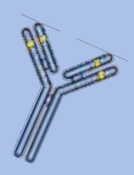
Superiority to anti-VEGF standard of care

NOVEL target - NOVEL Drug-candidate

Microfibrillar Associated Protein 4 – MFAP4:

- An extracellular matrix (ECM) protein and cellular adhesion factor expressed in blood vessel walls, including in the eye
- Major cellular receptor is **Integrin $\alpha_V\beta_3$** and minor cellular receptors: Integrin $\alpha_V\beta_{5,6}$ and $\alpha_{IIb}\beta_3$
- Synthesized by smooth muscle cells, endothelium, myofibroblasts and macrophages

ANTI-MFAP4:



✓Humanized full-lenght monoclonal IgG1

✓ KD ≈10^{-11} M

✓ Well-tolerated in mouse, rat, rabbit and monkey

LARGE UNMET MEDICAL NEEDS

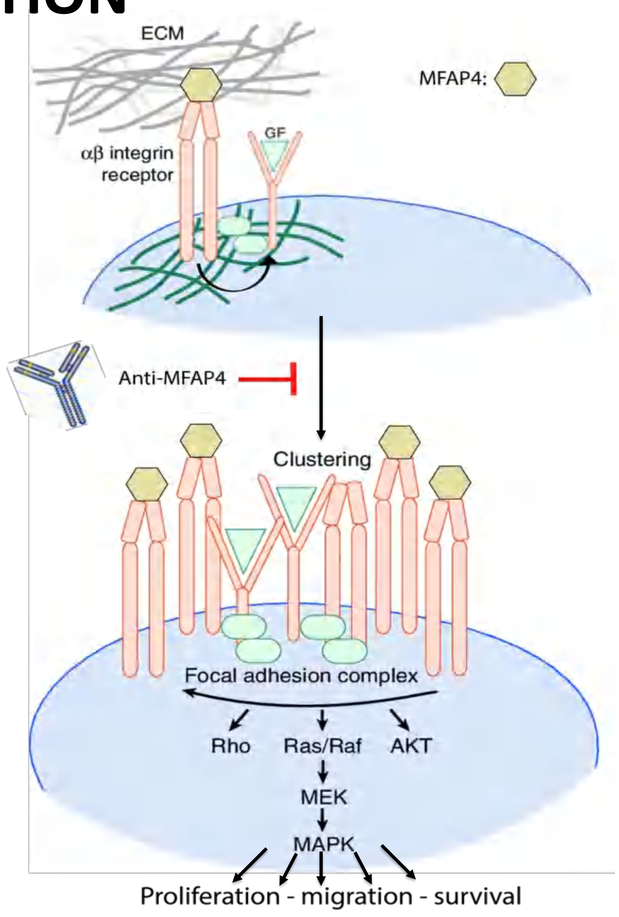
Despite receiving ANTI-VEGF standard of care:

- 10-50 % of neovascular Age-related Macular Degeneration (nAMD) and 50% of Diabetic Macular Edema/Retinopathy (DME/DR) patients respond poorly and gain suboptimal vision
- 25%-60% of the patients continue macular fluid and thickening
- Most patients suffer from frequent injections and will eventually develop end-stage fibrosis

Todays treatment: Intra-vitreal Anti-VEGF (Lucentis, Eylea or Beuvo)

MODE OF ACTION

ANTI-MFAP4 blocks MFAP4's interaction with integrins and prevents integrin clustering and focal formation leading to **inhibition of cellular activation** through Growth Factor (GF)-mediated cellular activation. Focal adhesion formation supports GF-signalling including VEGF, HGF, FGF and ANGII signalling.



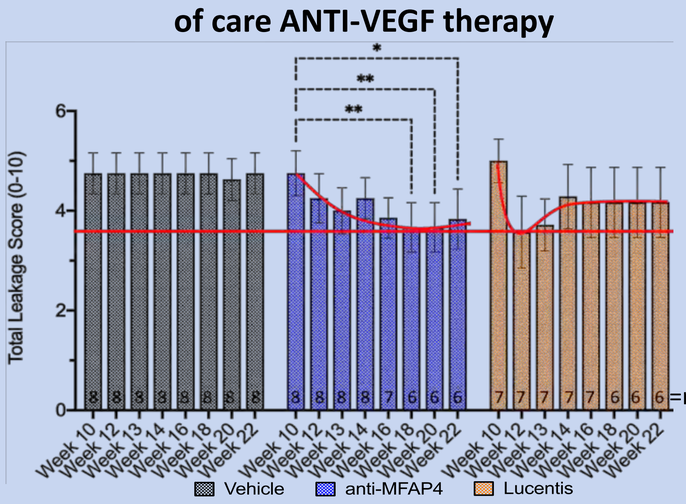
PRE-CLINICAL PROOF OF CONCEPT

PoC is proven in 4 different animal models and 4 different species (mice, rats, rabbits, non-human primates) for neovascular Age-related Macular Degeneration and Diabetic Retinopathy

CONCLUSION

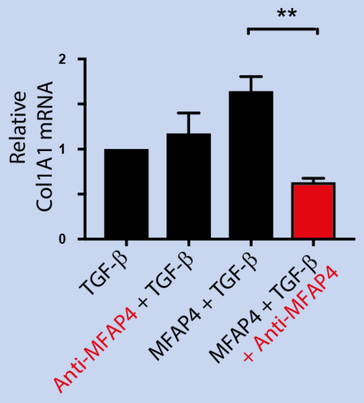
✓ Superior inhibition of ocular angiogenesis and vascular leakage
✓ Prolonged and sustained duration of efficacy – promising for low dosing frequency
✓ Low systemic spillover
✓ Also, opportune prophylactic administration
✓ Prevents inflammation during ocular diseases progression
✓ Acting anti-fibrotic

Longer duration of efficacy compared to standard of care ANTI-VEGF therapy



Induced chronic retinopathy in **Non-Human Primates** and PoC of intravitreal injections of ANTI-MFAP4 or ANTI-VEGF at week 10. Total retinal vascular leakage score monitored by angiography.

Collagen synthesis (fibrotic deposition) in retinal myofibroblasts is significant reduced



Inhibition of organ fibrosis after intravenous administration of ANTI-MFAP4 was confirmed in two independent animal disease models.

Technology Description

NEW therapeutic humanized monoclonal antibody, ANTI-MFAP4, targeting Microfibrillar Associated Protein 4. ANTI-MFPA4 has superiority efficacy compared to standard of care ANTI-VEGF therapy, showing at par efficacy to ANTI-VEGF, longer duration of efficacy and unique anti-fibrotic actions. ANTI-MFAP4 is in development for retinal eye diseases leading to blindness upon age and diabetes, and is very well suited for the large patient group of treatment-naïve ANTI-VEGF poor-responders suffering from neovascular AMD or DR/DME.

Intellectual Property Rights

Patent family 1: WO2014114298
Priority Date: January 2013, Issued in the US (US9,988,442) and EP (EP14743707.3).
Patent family 2: WO2019086580
Priority Date: November 2017. Continued nationally in US, EP, China, Australia, Canada and Japan.
Patent family 3:
Priority Date: April 2021. In priority year.

Team

Professor at SDU
Grith L. Sørensen
Future CSO of DARE Therapeutics ApS

Professor at SDU
Uffe Holmskov
Future strategic and scentific advisor of DARE Therapeutics ApS

Associate Professor at SDU
Anders Schlosser
Future scientific advisor of DARE Therapeutics ApS

Professor at
Nottingham University
David O Bates
Scientific advisor

Business Developer at SDU
Lene Aarenstrup Nielsen
Business Development advisor

BD Consultant, Fischer BioConsult ApS
Per Fischer
Consultant

Current State

The **DARE** program, targeting MFAP4 for treatment of **D**iabetic and **A**ge-**RE**lated eye diseases, is ready for the late pre-clinical development including CMC and TOX before moving to the clinical studies in patients.

DARE program is a university-based spin-out *in spe* from University of Southern Denmark (SDU).

Business opportunity and Call to action

The prevalence of nAMD and DME are above 9 mill. and 3.5 mill. worldwide, respectively. The current market for the retinal diseases is respectively over 5.9 b€ and 3.2 b€ and are expected to raise by 8-11% (2017-2027). Standard of care therapy suffers from several limitations that the DARE program meets by the novel ANTI-MFAP4 drug-candidate.
We are looking for investment for the future DARE Therapeutics ApS that will take the antibody through the remaining pre-clinial development into the clinical development. However, we would also be interested in partnering or out-licensing to a suitable pharmaceutical company.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

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Professor and future CSO
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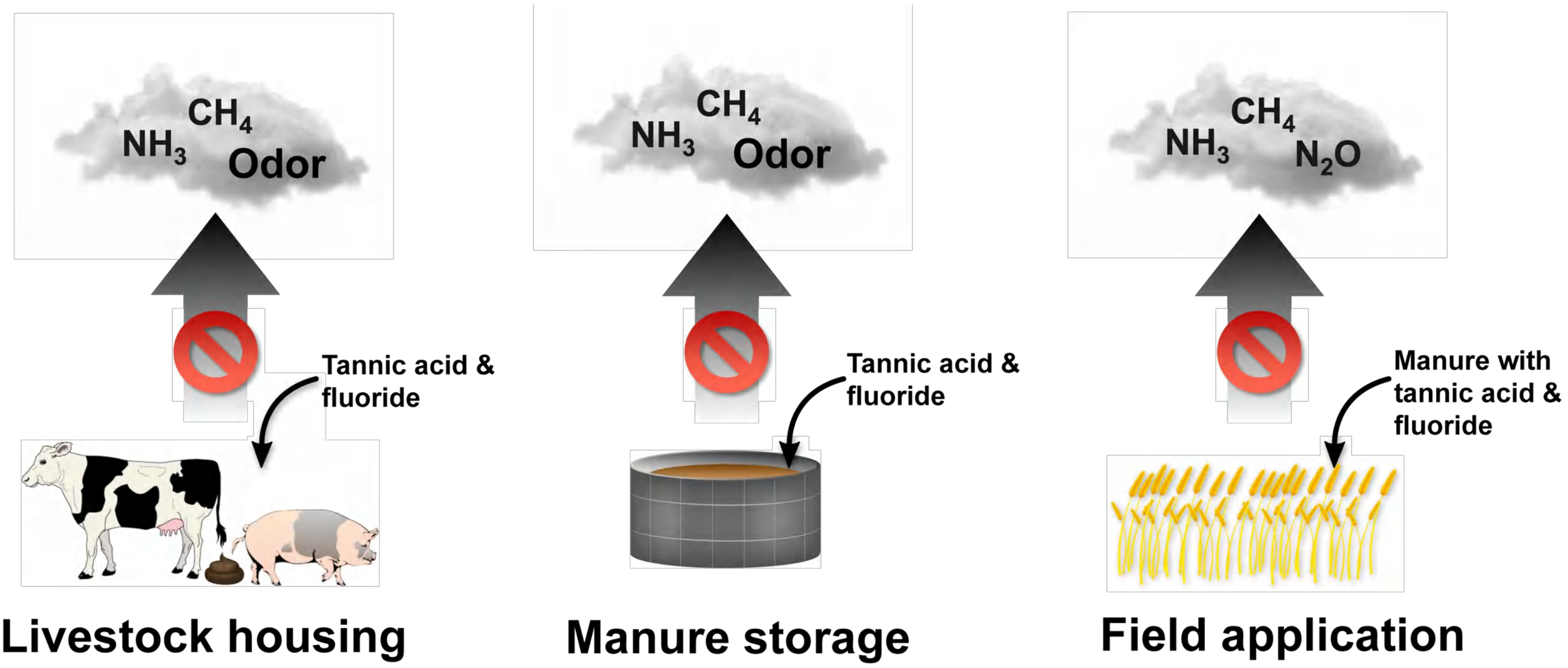
Better Fertilizers, Better Crops and a Better Environment

Sustainability

Mitigation of ammonia, odor and greenhouse gases from animal manure

We increase fertilizer nitrogen in manure by adding a proprietary mixture of compounds making more nitrogen available for obtaining higher crop yields and increased protein content. Simultaneously, we reduce ammonia, odor and greenhouse gas emissions (methane).



Technology Description

Industrial agriculture produces large amounts of manure slurry from intensive animal productions. Biogenic gaseous emissions from manure slurry give rise to numerous environmental and societal concerns. Emissions of ammonia (NH_3) and methane (CH_4) present an economic challenge to farmers as well as contributing to climate change.

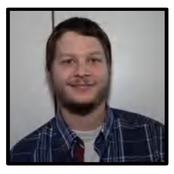
The product relates to an environmentally friendly formulation of tannic acid and fluoride (e.g. NaF) which can synergistically reduce/mitigate the transition of urea to ammonia in e.g. manure slurry. Simultaneous emissions of methane and odor is also reduced.
Thus, the combination of tannic acid and fluoride can reduce ammonia, methane and odor emissions from e.g. animal manure slurry or urea-fertilizers reducing loss of fertilizer nitrogen, impact on ecosystems and contribution to climate change.

Intellectual Property Rights

Priority application filed 12 June 2019. Patent application is currently in PCT phase with all claims regarded as novel and inventive by the EPO examiner.

Team

Professor WSR, PhD
Henrik Karring


Assistant Professor, PhD
Simon Svane

Project Manager, PhD
Jens Jakob S. Gade

Associate professor, PhD
Anders Feilberg

Postdoc, PhD
Frederik Dalby

Senior Advisor, PhD
Michael J. Hansen

Current State

The use of tannic acid and fluoride to reduce ammonia emissions has been tested in manure slurry from pigs in both a laboratory environment and in larger scale (stables and slurry tanks). Next steps are:

- Demonstrate improved cost-effectiveness by using cheaper raw materials
- Demonstrate improved fertilizer value of the manure through field trials
- Demonstrate compatibility with biogas production
- Demonstrate reduction of ammonia emissions from other animal manures

Business opportunity and Call to action

In Denmark alone, 35 million tons of manure are produced annually and only 18% of those are treated by ammonia reducing technologies today. We believe our technology is superior to existing technologies and can reach broad market penetration.

We are looking for partners to co-develop the technology towards commercialization, especially large-scale testing of the improved fertilizer value in field trials.

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Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITET

SDU

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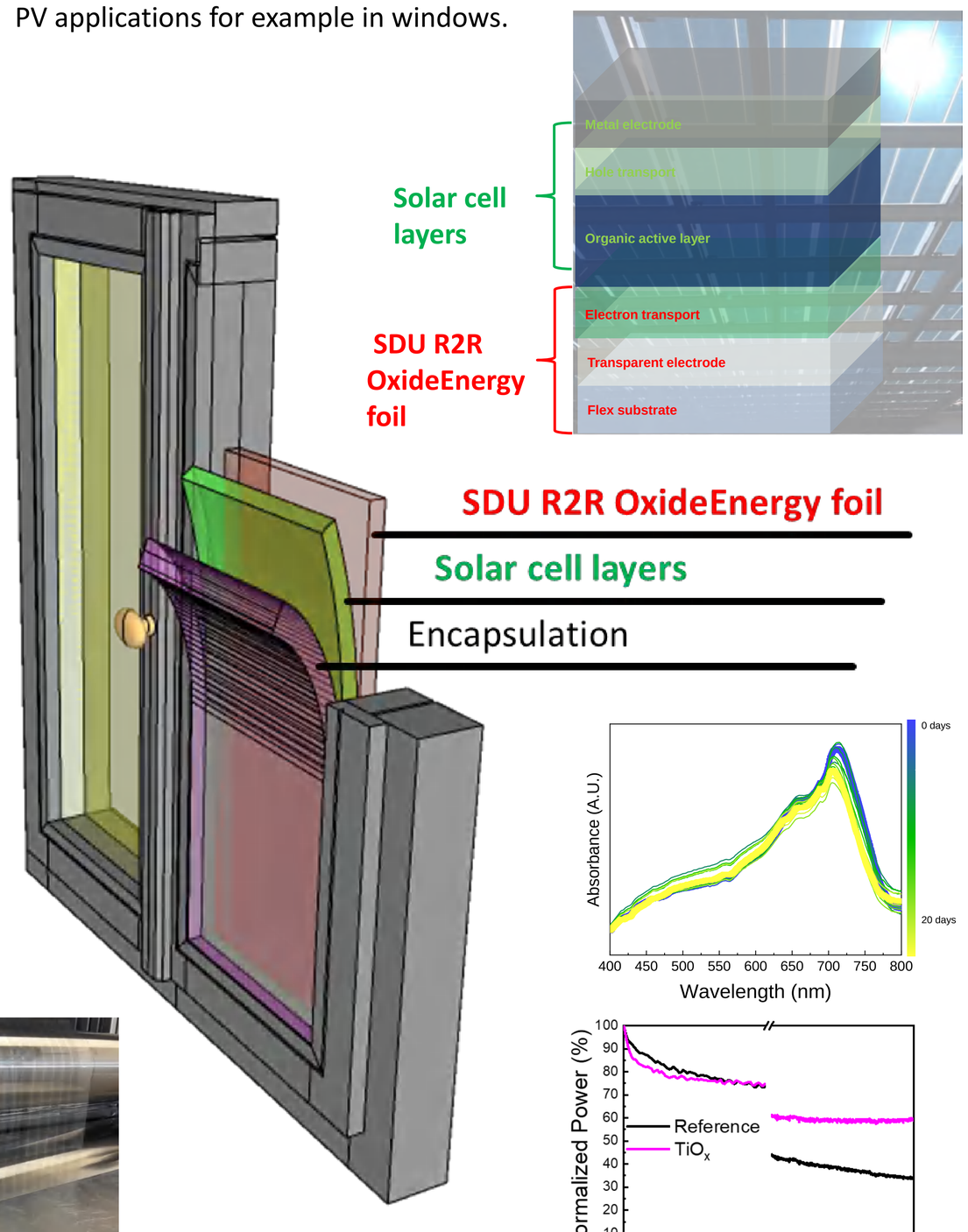
OxideEnergy

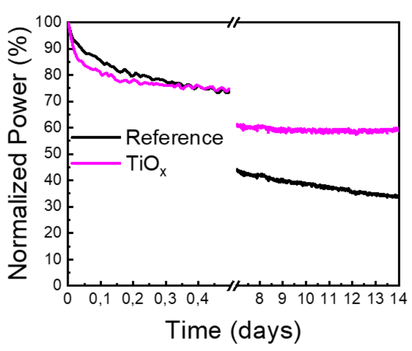
The game changer for OPV market breakthrough

Sustainability

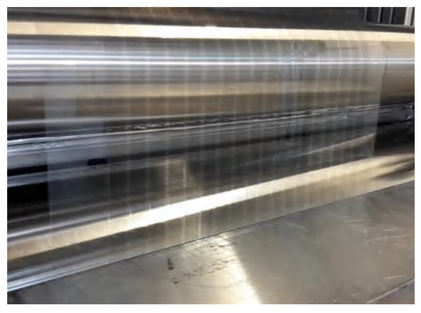
Our new OxideEnergy metal oxide foils, embedded as contact layers in Organic PhotoVoltaics (OPV), will enhance the lifetime of commercial OPV to above 20 years, and thus become highly competitive to established PV technology.
Using industrial Roll-to-Roll (R2R) manufacturing tools, it is possible to scale up the fabrication of these foils at low costs to make them commercially viable substrates for thin-film photovoltaics, including OPV.

OPV layer structure, shown in green, with our new OxideEnergy metal oxide foils shown in red. The tunable semi-transparency of OPV opens up for new PV applications for example in windows.





Device and film stabilization of OPV using our new OxideEnergy foils



Roll-to-Roll (R2R) vacuum sputtering of metal oxide foils on flexible substrates @ SDU in Sønderborg

Technology Description

Transition metal oxides (TMOs) hold unique optoelectrical properties that have been exploited in charge transport layers in thin-film PV. Recently, we have demonstrated that reactive sputtered metal oxides can significantly improve the lifetime of organic PV devices, by combined control of microstructure, composition and also surface passivation. Importantly, the foils can be scaled up at low cost using Roll-to-Roll (R2R) vacuum sputtering.

Intellectual Property Rights and references

May 2021 patent application: EP 21172248.3, A method of passivating surface effects in metal oxide layers and devices comprising thereof.

Team

Morten Madsen
Professor, head of OPV group
More than 10 years of research in the area of OPV and sputtered metal oxide interlayers

Mehrad Ahmadpour
Postdoc.
An expert on sputtering of metal oxide interlayers

Jani Lamminaho
R2R engineer
An expert in R2R coating processes

Current State

We have developed the new OxideEnergy technology on small scale, and verified their successful integration in OPV, including demonstration of significant lifetime improvements. Currently, we work on scaling up the technology using dynamic and large volume Roll-to-Roll (R2R) vacuum sputtering technology, which is also compatible with industrial standards.

Business opportunity and Call to action

During our InnoExplorer project, we aim to demonstrate scalability of the technology, verified by the integration of scalable OxideEnergy foils in OPV modules.
We are looking for a person with domain and business development knowledge to help the project to set the right course for the next steps towards commercialisation.
After the project we will form a spin-out company to reach a commercial stage.
We search for investors to establish a production of the R2R OxideEnergy foils for true commercialisation.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

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A new class of antibiotics against multiresistant bacteria

Biotech & Pharma

– coined triaromatic pleuromutilins. They display high activity against problematic **MDR strains**, have a promising **drug-like** profile, and may potentially, with the help of a partner, solve a global health challenge

1 Resistance has infected the globe

... and will continue to do so, only faster and with deadlier outcomes:

Cause: antibiotic failure leads to increased use of remaining options

Effect: late-stage antibiotic therapy lines are being depleted

Methicillin resistant *Staphylococcus aureus* (MRSA)

Vancomycin resistant *Enterococcus faecium* (VRE)

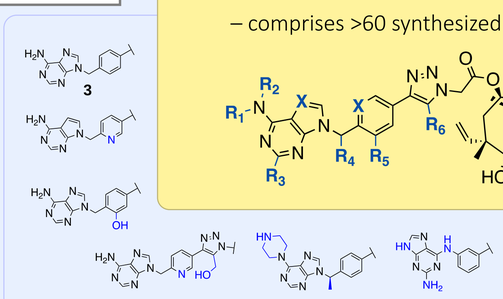
- Very high % resistance among MRSA and VRE clinical isolates
- Among Gram-positive pathogens they have the highest priority and urgency in antibiotic **drug discovery and development** (CDC, WHO, 2018)

2 A novel pleuromutilin subclass

Why Pleuromutilins?

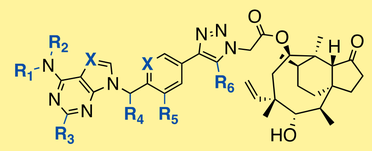
The pleuromutilin class possess inherent advantages over many other:

- Unique mechanism of action
- Resistance has slow onset and often result in bacterial growth defects

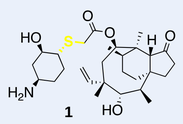


Patented scaffold

– comprises >60 synthesized analogs



Xenleta® – Infobox

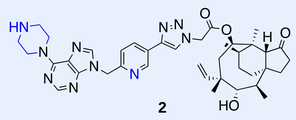


1

- Classic sulphide conjugate, also known as lefamulin. Approved 2019 via FDA Fast Track
- High efficacy against community acquired pneumonia
- Not approved for *Staphylococcal* ABSSSI indications
- Associated with mild QT prolongation (hERG), CYP3A and P-gp inhibition. Result: **Contraindicated**

Present status: Strong lead identified

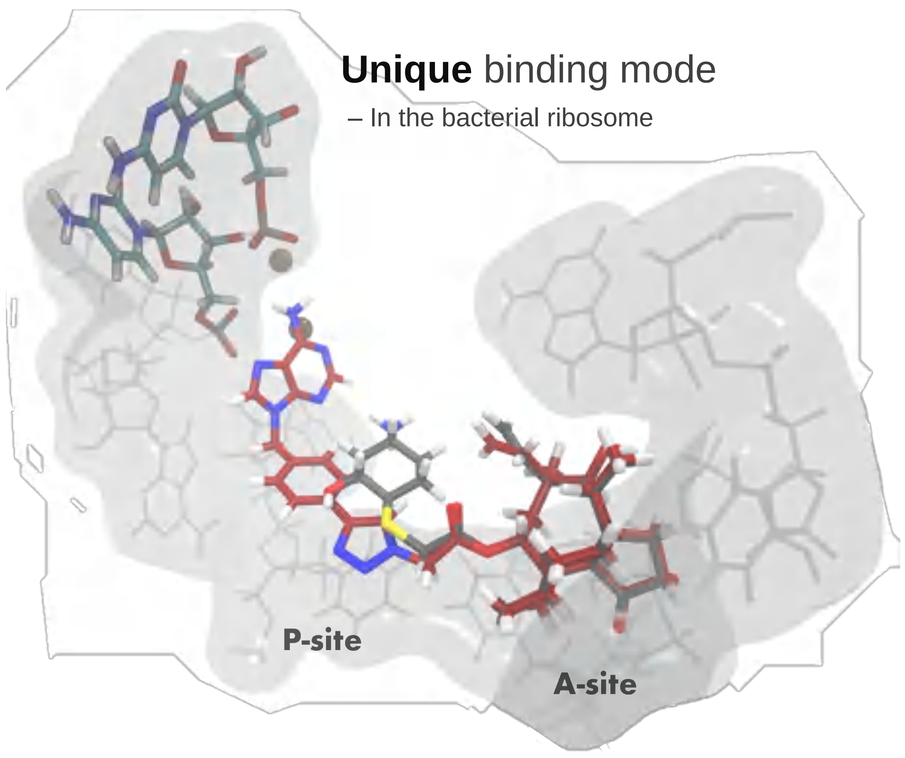
- Compound **2** highly potent against first-in-class pathogens/indications
- Reduced hERG and P-gp affinity
- Outperforms lefamulin (**1**) *in vitro*



2

Compound	MIC [μg mL^{-1}] MRSA USA300	*E. faecalis*[a]	VRE 1[b]	Solubility [mg mL^{-1}][c] HCl-salt ± SE	Off-targets [IC_{50}, μM] hERG[d]	P-gp[e]
Lefamulin (**1**)	0.12	0.06	0.12	>100 (acetate)	126 ± 14	43 ± 10
CVH-174 (**2**)	0.12 - 0.25	0.03	0.03	>10	>200	57 ± 15
CVH-88 (**3**)	0.03	0.25	0.12	0.012 ± 0.001	>200	36 ± 22

[a] linezolid resistant
[b] ampicilin, ciprofloxacin, vancomycin resistant. Susceptible to only daptomycin and tigecycline
[c] in H_2O (MiliQ), centrifuge/HPLC protocol
[d] Automated whole-cell patch clamp assay (Aptuit, Italy)
[e] Calcein AM assay, N ≤ 4

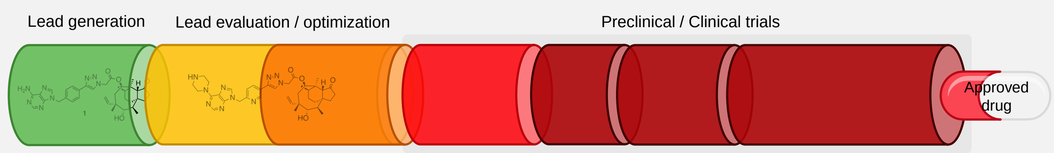


Unique binding mode

– In the bacterial ribosome

3 Pipeline data – Next step

- Lead evaluation and optimization is ongoing and expected to give a selection of promising drug candidates. At present, this involves:
  - *In vitro* permeability
  - Mouse infection model (efficacy)



- In order to advance and keep our strong momentum within the project **a partner** is needed either via:
  - **Co-development / License** (Preferred)
  - **Spin-out / Investor** (Alternative)

Technology Description

- We have invented a new compound class with pronounced activity against MRSA as well as VRE. Both constitute serious threats to human health, with diminishing treatment options
- Our compound class belongs to the group of pleuromutilin conjugates, which is associated with low inherent rates of resistance and cross-resistance development. As importantly, the new class is chemically unique to other pleuromutilin based compounds and can be easily modified and synthesized
- Within a library of more than 60 compounds belonging to our compound class, we have identified a strong lead (**2**), which outperforms lefamulin (**1**) in terms of antibiotic activity, potential indications, off-target affinity and overall demonstrates a promising drug-like profile

Intellectual Property Rights

- Patent (PCT/EP2021/061318, soon public). Priority filed May 2020 and PCT in May 2021
- Inventors: Poul Nielsen, Christoffer V. Heidtmann. Owner: SDU

Team

Professor in Chemistry
Poul Nielsen
SDU

Research Assistant (Med. Chem.)
Christoffer Vogsen Heidtmann
SDU

Business Developer
Thomas Mørch Klemmensen
SDU-RIO

Professor in Pharmacy
Carsten Uhd Nielsen
SDU

Assoc. Professor in Microbiology
Janne Kudsk Klitgaard
SDU

Professor, Chief Physician
Niels Frimodt-Møller
Rigshospitalet

Current State

- By mid 2022, we will have evaluated the key aspects and proof-of-concepts necessary to initiate a standardized preclinical trial in collaboration with a partner.
- These include: in vitro ADMET, *in vitro* resistance acquisition rate, *in vivo* efficacy and *in vivo* PK
- TRL: 4

Business opportunity and Call to action

- We are currently looking for company collaborations/partnerships with expertise in antibiotic development to help accelerate the further development of this new and very promising antibiotic class.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

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Diagnostic CamPill

Medtech & Diagnostics

The camera pill with a doctor inside

Stratos AI

Accelerating access to cancer diagnosis through CamPill – comfortable, easy for patients to use; faster, more accurate for clinicians; Easy to adopt for payer/providers

Path reconstruction, anatomic landmark identification and localization

On-board AI (deep neural networks)

Abnormality detection and characterization, size estimation, semantic segmentation and localization

Intelligent CamPill

- Identifies multiple bowel diseases
- Higher detection rate of precursors of cancer than competitor devices – finds 35% more significant polyps

Artificial intelligence software, data asset

- Clinical- & market-driven AI development using unique combination of technology expertise
- AI embedded in CamPill allows real-time, rapid diagnosis

Customer business case

- Higher patient uptake, rapid results, higher accuracy
- Patient stratification means fewer patients have costly examinations
- Within DRG rates

Technology Description

A camera pill for full digestive tract analyses identifying several diseases including precursors to cancer.
A sophisticated AI based on thousands of patients is embedded allowing real time diagnostics.
The pill is developed by leading AI, software and hardware experts from the University of Southern Denmark along with medical specialist from Odense University Hospital.

Intellectual Property Rights

DUAL-MODE ENDOSCOPIC CAPSULE WITH IMAGE PPROCESSING CAPABILITIES:
CA3124747, US20200329955, EP3727124

Team

Bettina Drefeld Eriksen
Founder- CEO
Experienced CEO in international scaling and turn arounds with smart technology and medtech

Claus Duedahl Pedersen
Founder, Chairman of Board
Head of international infra structure
Experienced in healthcare economy, business development within IT and medtech

Esmaeil Nadimi
Founder and chairman of advisory board for engineering
Professor Maersk Institute, Experienced international researcher within Artificial Intelligence (AI) and Machine Learning (ML)

Gunnar Baatrup
Founder, Head of clinical R&D
Professor OUH, expereinced international researcher within CO and CCE

Kevin John Dean
Strategic advisor
Former interim Director General IT, NHS & Non-Executive Director, Genomics England; Chair of two AI imaging start-ups in Scandinavia; Venture Partner, EMV Capital, UK; Adjunct Prof. Telehealth, CIMT Denmark

Trine Wenck von Wenckheim
CTO
Experienced in international scaling of supply chain and production within innovative technology companies

Current State

Grant funded Euro 7m investment plus Euro 2m in team effort
The Region of Southern Denmark / OUH - Clinical Trial with 1500 patients
Proof of technology & Proof of concept achieved
Team secured – CEO, CTO, CMO, CCO, R&D both clinical and engineering
AI Stratification platform developed
Pipeline growing internationally – weighted pipeline value Euro 69m 2024 – proof of business
Letter of Intent from Customer 1 for pre-sales paid clinical study in Europe – (September 2021)
Established a secure national services infrastructure together with Sundhed.dk, the national eHealth portal.

Business opportunity and Call to action

The specific need for working capital is 7M€ to complete clinical trials and develop existing prototype of CamPill device to its first clinical deployment. Furthermore, to complete CE/EU MDR Class IIB as well as completing the “series zero” production for a batch at 10.000 CamPills, which will prepare us for transition into full scale production in EU.

We are looking for an experienced QMS manager.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

Region Syddanmark

SDU

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TREM2: A non-invasive NASH biomarker

Biotech & Pharma

NASH is a highly prevalent disease ultimately leading to liver cirrhosis and cancer.

NASH is currently diagnosed using liver biopsies in late-stage of the disease.

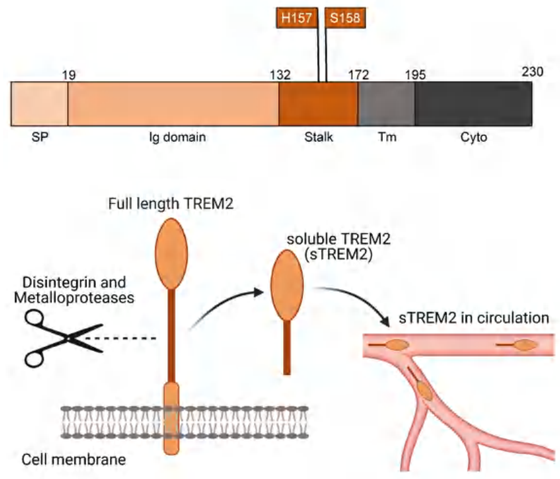
We have identified plasma sTREM2 as a non-invasive NASH biomarker enabling early-stage disease diagnosis and intervention.

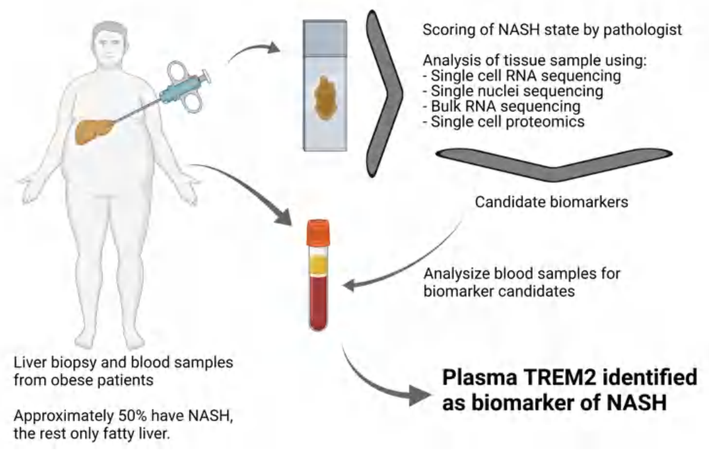
NASH background and market

- NASH is a slowly progressing deadly disease caused by inflammation and fibrosis of fatty liver. The disease progression leads to cirrhosis and liver cancer.
- Treatment is lifestyle modifications and bariatric surgery, large number of drugs in clinical development
- Global prevalence of fatty liver is about 25% and about 20% of these have NASH
- NASH is now the leading cause of liver transplants
- Since the disease is reversible and drugs are in development early diagnosis of NASH is of key importance and commercially attractive
- **Current diagnosis: liver biopsy and/or scanning to detect fat accumulation, inflammation and fibrosis. This is costly for society as well as risky and burdensome to patients**
- NASH is vastly underdiagnosed – called the silent killer
- NASH diagnostics market estimated to reach $3.7 billions per 2028 (CAGR of 21%)

Soluble TREM2 as biomarker of NASH – can we make the silent killer talk?

- TREM2 expression on macrophages is upregulated in NASH patients
- A small fraction of TREM2 is also released to plasma
- We identified increased levels of plasma soluble TREM2 (sTREM2) in patients diagnosed with NASH, scored using the NAS grade or SAF score on biopsies



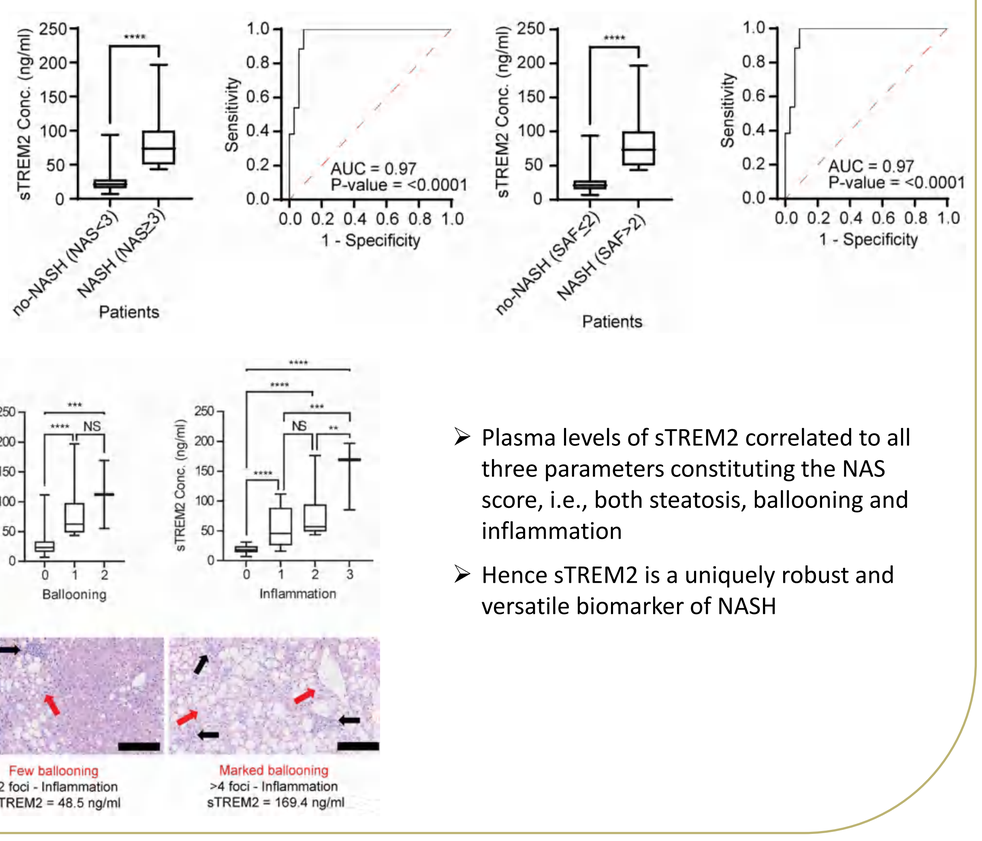


1 year plan to develop immunoassay for plasma TREM2 detection
Seed investment period

	2022 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	Deliverables
WP1 Assay development	Raise TREM2 mAbs; mAb charactization; optimize ELISA; Multiplex dev.; Immunoturbidimetry dev.	Set of hybridomas >10 mAb candidates for ELISA development ELISA method for plasma analysis Alternatives to ELISA for clinical implementation
WP2 Assay validation	CV and sens. ELISA; Robustnes of ELISA; Sequence mAbs; Optimize mAb expression, formulation and stability	Establish quality of ELISA Demonstrate ELISA sensitivity to variations Generate unique ID of mAbs used for IP Show scalabilty of selected mAbs
WP3 Biomarker validation	Validation cohorts; Intervention study; Colaboration studies	Range of studies to validate TREM2 as biomarker Establish TREM2 as a biomarker of NASH regression Analysis large number of biobanks
WP4 Business development	Update filed patent application; Compile data package for partnering; Partnering	Patent updates Consultant validated relevant data package ID of potential partners/term for spin-out

Plasma TREM2 can accurately identify NASH patients

- Plasma levels of sTREM2 significantly higher in patients with NASH (defined as NAS >3 or SAF>2) than in obese controls
- sTREM2 identified NASH patients with an impressive accuracy, as characterized by the "area under the receiver operating characteristic value" of 0.97



- Plasma levels of sTREM2 correlated to all three parameters constituting the NAS score, i.e., both steatosis, ballooning and inflammation
- Hence sTREM2 is a uniquely robust and versatile biomarker of NASH

Technology Description

- We have identified a protein in plasma, sTREM2, that can identify NASH patients from a single blood sample with high diagnostic accuracy
- sTREM2 is at par or better than other biomarkers in development (none are approved)
- Measuring sTREM2 will function as a non-invasive diagnosis of NASH, method will be based on ELISA or immunoturbidimetry – techniques that can be implemented in routine hospital setting

Intellectual Property Rights

- Measuring of plasma sTREM2 as NASH biomarker is IP protected, priority application filed May 2021. Patent jointly owned by SDU/RSD

Team

Associate Professor
Jonas Heilskov Graversen
Director

Post doc
Vineesh Indira Chandran
Project Manager

Associate Professor
Yaseelan Palarasah
Scientist Antibody Development

Chief Physician
Aleksander Krag
Head of Clinical Development

Patent Attorney
Jacob Schwalbe Lohmann

Business Developer
Thomas Mørch Klemmensen

Current State

We have shown that plasma sTREM2 is a potential NASH biomarker
For sTREM2 to be ready to use in clinic we need to:

- Raise own TREM2 antibodies and develop in-house detection method
- Perform validation studies on more cohorts, including looking at TREM2 levels in patients with regression in NASH score
- Scale production
- Perform IVD enabling studies (at partner or spin-out)

Business opportunity and Call to action

- We need resources to expedite assay and business development
- Can be partnership or investor for spin-out to generate PoC, we plan to partner before clinical development
- We have a one-year streamlined plan that will provide an assay ready for licensing or scale up and clinical development
- The project can significantly improve the life of patients with NASH by enabling early diagnosis and disease intervention

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU
Region of Southern Denmark
OUH Odense University Hospital

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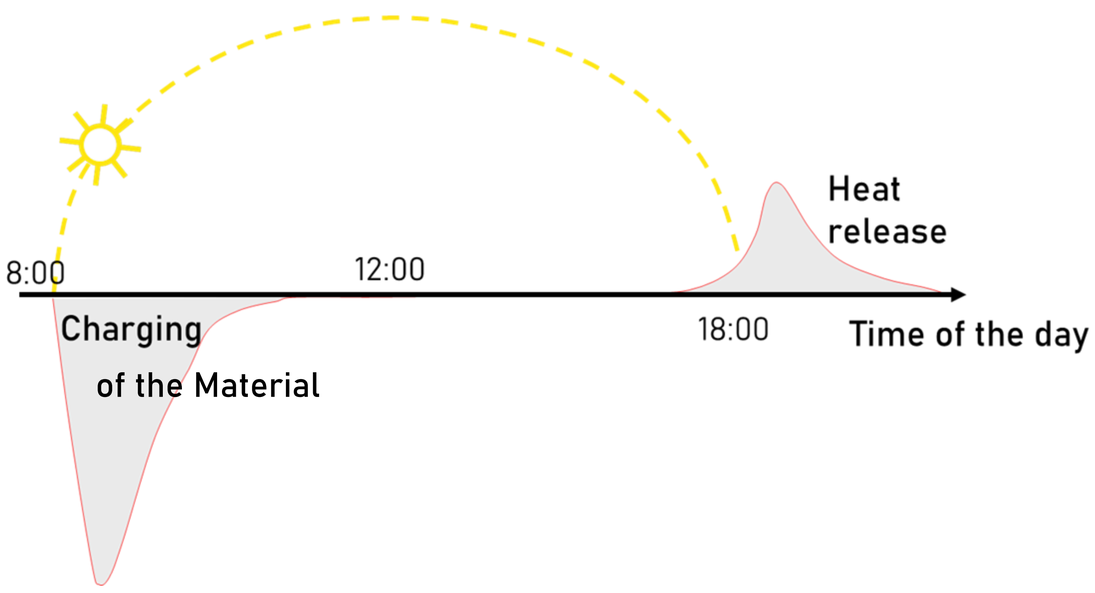
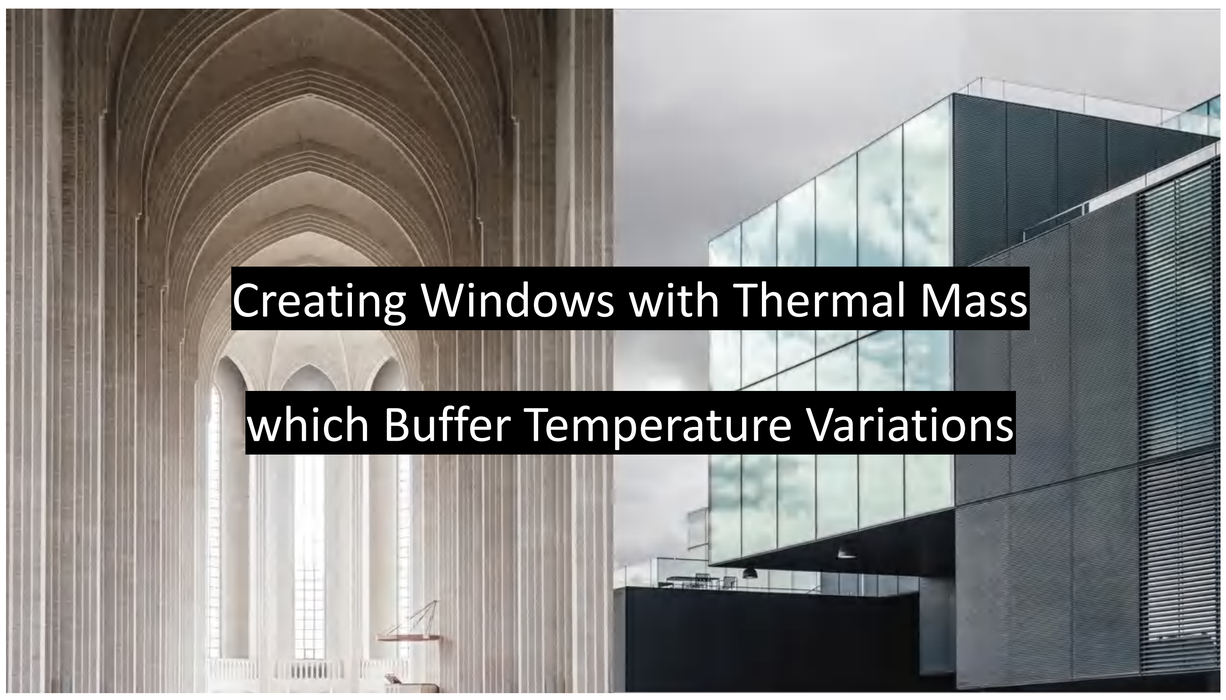
Sustainability

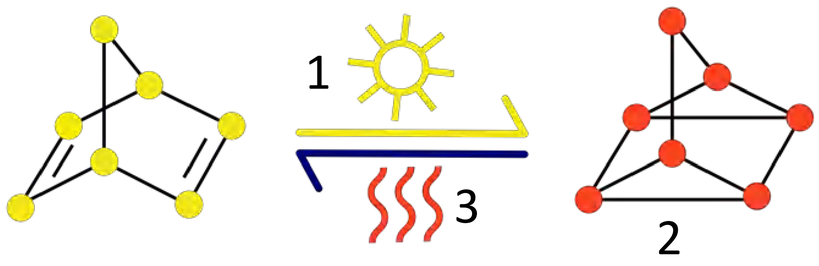
Solartes

Smart material for solar energy storage in high performance windows

Solar Powered Thermal Management in







1 Absorption of light during the day

Absorption can be engineered from 300nm to 470nm

2 Energy storage in chemical bonds

Up to 300 kJ/kg

3 Energy released as heat after sun set

Automatic energy release times ranging from 30min to 17 years,

Or triggered heat release on demand

Technology Description

A major challenge for modern architecture is to design spaces full of natural daylight with beautiful glazing solutions without causing a huge energy demand for heating and cooling.

We at Solartes address this dilemma by developing a new window technology that maximizes daylight, enhances the indoor comfort and improves the energy efficiency of a building.

The key to these new high-performance windows is our transparent smart material which harvests solar energy at daytime and releases heat after sunset. Just like the stone walls of a cathedral that take up and release heat, it shifts the heat of the morning sun to the cooler evening, keeping the interior comfortably warm after sunset and reducing the need for heating and cooling.

Intellectual Property Rights

The patent application protecting the smart material (core technology) for various applications was submitted in November 2020, application number SE2051371-9.

Team

Dr.
Anna Hofmann
CEO

Prof.
Kasper Moth-Poulsen
Scientific Advisor

Peter Selley
Head of the Board

Dr.
Sarah Lerch
Research Engineer

Dr.
Anna Said Stålsmeden
Research Engineer

Current State

After validation of the smart material technology on a small prototype scale and validation of market interest with several potential customers, we are now building the capacity to optimize the material performance according to customer needs. (TRL 3/4)
Further we are expanding our network and are developing customer validation tools that will help us to reduce customer acquisition time.
Our next objective is to engage with commercial partners for joint development and testing of a first window prototype, validating the market potential of our product.

Business opportunity and Call to action

We are looking for an inspiring exchange with people who share our vision of a green and sustainable urban future, people who would like to integrate thermal management functions into their products and for partners for joint prototype development and testing.

We are currently not fundraising, but we are looking to broaden our network of potential customers and investors who are interested in our domain and technology.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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Amferia

Medtech & Diagnostics

Combating Antibiotic Resistance with Innovative Antimicrobial Medical Devices

amferia
Innovative Materials for Healthcare

Innovative Antimicrobial Wound Patch that targets & rapidly binds & kills all bacteria, even antibiotic resistant bacteria.

The products are built on 7+ years scientific research from Chalmers University supported by multiple pre-clinical studies and early clinical data from human and veterinary studies.

Human Wound Care

Veterinary Wound Care

Business Offering: ***Amferia is interested in industry partnerships and out-licensing to expand the reach of our products into the global market for human and animal wound care.***

Technology & Product Description

Amferia's wound care technology AMP-Hydrogel is a novel, safe and scalable antibacterial hydrogel that can be engineered into an efficient anti-infective wound patch. The current product are based on an idea that combines two fundamental concepts; polymer amphiphilicity and antimicrobial peptides (AMPs). AMPs are highly potent and selective antimicrobials that can target and kill bacteria by rupturing the bacteria membrane without developing resistance.

AMP-Hydrogel implements a scientifically robust approach to develop medical devices based on AMPs. This is achieved via covalent binding of AMPs to the surface of a soft, ordered and amphiphilic hydrogel pad. By coupling the antimicrobial peptide to an underlying amphiphilic hydrogel, an efficient and cost-effective design of an active wound patch is realizable. Such a design provides a balance between stability and activity, significantly reduces cost of the peptide. A key enabling factor is the end-product is a singular material that does not leach or release the peptide into the body, but rather acts locally as a contact-killing and bacteria-binding medical device - thus enabling faster clinical translation. Amferia's innovation, with its binding aspect, enables the peptides to be stable and active for up to 5 days.

Intellectual Property Rights

Amferia's technology protected by three patent families with one family approved in Sweden and positive responses from the EPO. Two patent families are in the National phase across six countries

Team

CEO
Anand Rajasekharan
Amferia AB

Product Engineer
Edvin Blomstrand
Amferia AB

Product Engineer
Annija Stepulane
Amferia AB

CTO
Saba Atefyekta
Amferia AB

CSO
Martin Andersson
Amferia AB

Quality Engineer
Rojan Modaresi
Amferia AB

Current State - Product

AMP-Hydrogel has matured into a full-fledged wound dressing that has demonstrated promise in pre-clinical wound models and veterinary clinical case studies. Today, multiple veterinary clinics have started to use AMP-Hydrogel for surgical care and early data demonstrates the product's promise in wound care. Amferia aims to officially launch the product for small-animal use by 2021 in Sweden and Germany. The product has seen growing demand for human care. We are discussing clinical evaluation for human surgical wounds with hospitals in west-Sweden. The product is under preparation for CE marking.

Business opportunity and Call to action

Amferia's primary business model is to enter into a licensing or B-2-B partnership with industry to further scale and grow the product in both human and veterinary care globally. We are very interested to enter into discussions with established companies operating in the wound-care segment and infection care and discuss partnership or licensing possibilities.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

CHALMERS
UNIVERSITY OF TECHNOLOGY

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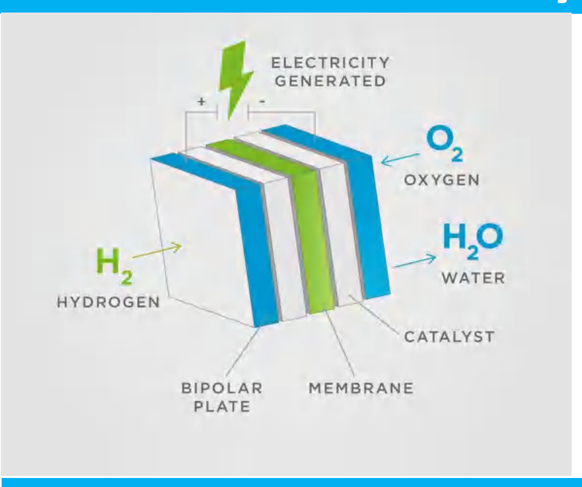
Celcibus AB

Sustainability

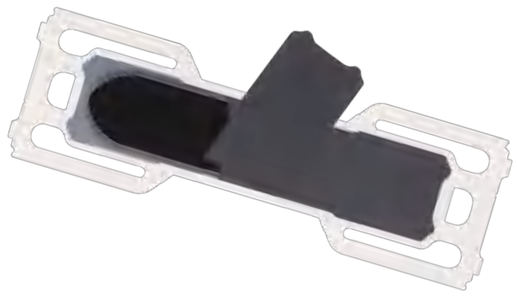
Accelerating transition to a fossil-free energy system

Fuel cells convert hydrogen into electricity and water when supplied with air – emission free



Catalyst powder

The catalyst is where the electrochemical reaction takes place



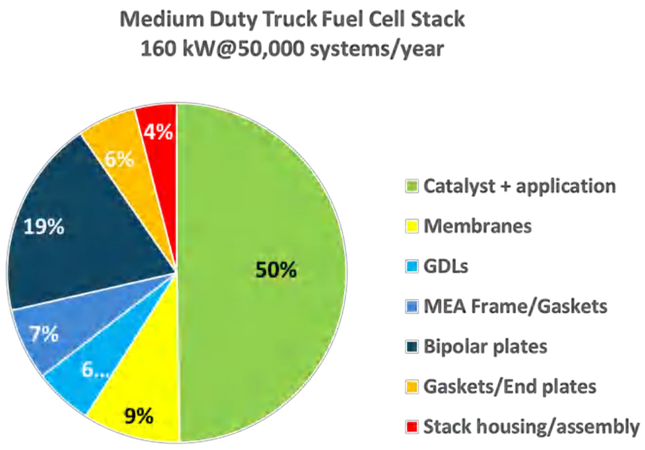
Membrane electrode assembly (MEA)

The catalyst is deposited on a membrane, and gas diffusion layers are added

Fuel cell stack

Several MEAs are stacked together to achieve the desired power output from the fuel cell

Current catalysts, made from noble metals, make fuel cells expensive and supply vulnerable

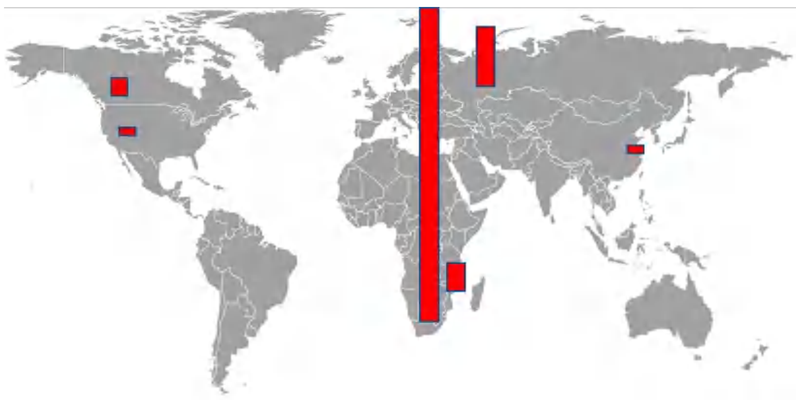


Critical Raw Minerals (CRM)

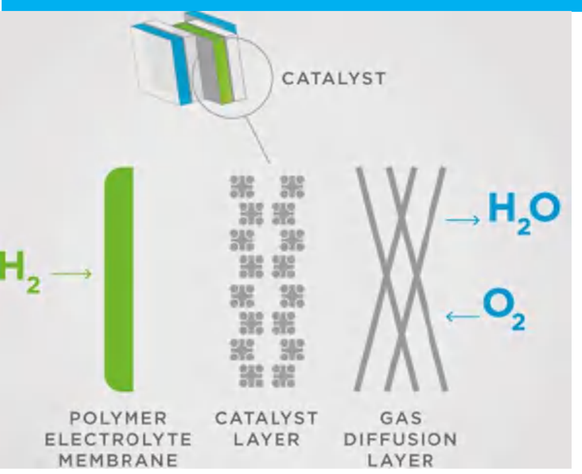
Both the International Energy Agency and the European commission has identified Platinum Group Metals as minerals in growing demand for the transition to clean energy.

The high cost of the raw metal makes the catalyst the most expensive part of a fuel cell stack, and there is no economies of scale; higher demand will likely cause price increases.

More than 90% of the world's platinum production come from South Africa, Russia and Zimbabwe, and could be subject to price volatility, geopolitical influence and even disruptions to supply.



Celcibus' innovation eliminates noble metals, targets several vital markets



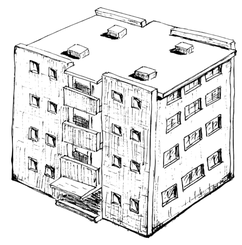
Key benefits over platinum-based catalysts:

- Controlled raw material supply, avoids geopolitical issues and less controlled mining conditions
- Cheaper materials, avoids noble metals
- Simplified recycling, avoids toxin creating recycling processes

Key benefits over noble-metal free catalysts:

- Selectivity of active sites, less hydrogen peroxide formed
- Less side-reactions and membrane degradation, leads to longer lasting MEA
- Cheaper precursors; simpler raw carbon material can be used instead of synthesized aromatic compounds

Automotive



Building heat&power

Back-up power

In 2030, market for fuel cell catalyst for automotive applications is projected to exceed € 400 million. Celcibus aims for 25% market share at that time.

Technology Description

Professor Palmqvist has worked on fuel cell catalysts since 2008 and made a break-through discovery in 2011, when he proved that noble metals in the cathode could be replaced by more sustainable alternatives.

The current catalyst is based on a unique functionalized electricity-conducting porous carbon skeleton providing catalytic activity. The structure of the active site is inspired by biological protein catalysts which increases the activity and provides high selectivity of the desired electrochemical 4-electron reaction.

Intellectual Property Rights

Patent application WO 2012/064279 has been granted in the US, China, Korea, Ukraine, Australia and more; pending in Europe and others, has not been rejected or abandoned in any market where an application has been filed.

Celcibus AB is the sole owner of the IPR.

CEO
Patric Stafshede, MSc, MBA
Int'l bus.dev. experience

CTO
Lisa Palmqvist, PhD
Printing process expert

CSO
Anders Palmqvist, Prof.
Fuel cell catalyst expert

Product developer
Jessica Orrego Hernández, PhD
Catalyst synthesis expert

Product developer
Walter Rosas Arbelaez, PhD
MEA development expert

Project manager
Sara Erkfeldt, PhD
Truck industry experience

Current State

- Manufacturing of MEA in industrial scale process proven by commercial manufacturer, proof-of-concept fuel cell stack testing performed by international commercial fuel cell stack manufacturer (TRL 6). LOIs with a global automotive truck manufacturer and a global fuel cell stack manufacturer.
- The company was founded in 2019 and a full-time team (now 4 FTE) was hired in beginning of 2021. Move to own facilities August 2021.
- Raised 900 kEUR in equity and 250 kEUR in soft financing, founder still owns 51%

Business opportunity and Call to action

Looking for investors for 1,5 MEUR seed-round in December
Expect additional 4 MEUR needed in order to reach cash breakeven in late 2024.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

CHALMERS UNIVERSITY OF TECHNOLOGY

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DPella

Digitisation, AI & Robotics

Unleashing the power of analytics while respecting the privacy of individuals

dpella

Goal

Identify trends in human behaviors

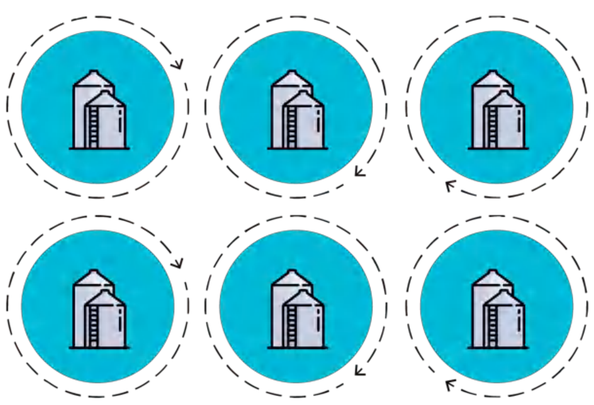
Purpose

Sharing/monetizing data insights

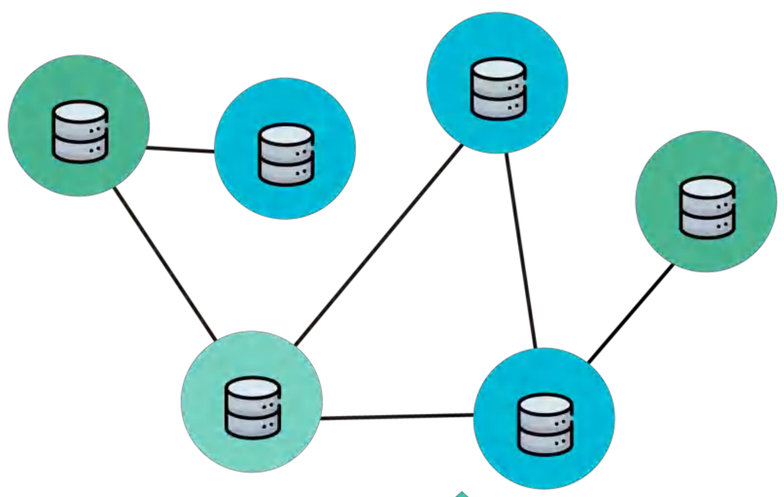
Challenge

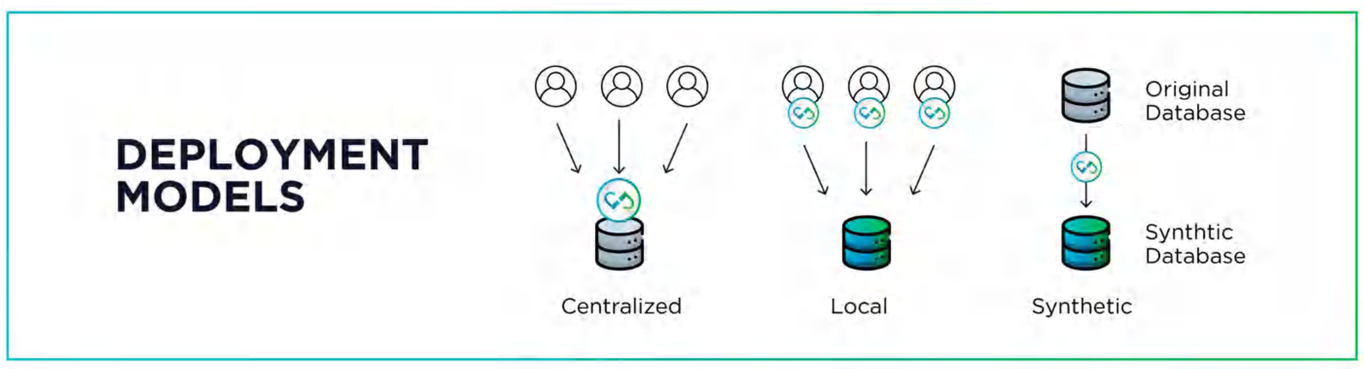
Not violating privacy of individuals and being GDPR compliant

Data Silos



dpella





Sharing data insights without worries

Technology Description

DPella is a tool for creating **privacy-preserving data analyses and synthetic databases**. It disturbs the analysis' results with random noise to protect Privacy while providing information about the accuracy of the analysis.

DPella uses a mathematical framework known as **Differential Privacy** to reason precisely about privacy and accuracy trade-offs. Differential Privacy is the only academically validated technique to protect privacy on analytics.

The research community has validated our **patented pending novelty** to efficiently calculate the accuracy of data aggregations.

Intellectual Property Rights

Patent pending PCT application number PCT/SE2021/050387 – Title: Estimating accuracy of privacy-preserving data analyses. Ownership: DPella AB.

Team

Prof.
Alejandro Russo
Co-founder & CEO/CTO

Prof.
Marco Gaboardi
Co-founder & Chief Scientist

Arch.
Carola Compa
VP Business Development

Ph.D. Student
Agustin Mista
Backend/testing engineer

Ph.D. Student
Elisabeth Lobo
Privacy engineer

Current State

DPella's solution tool consists of a framework that provides privacy-preserving analytics. Currently, the framework has fully developed a first set of analytics ready to be deployed as MVPs; we are constantly expanding this set to add other analytics capable of providing more data insights. Prospective customers have also validated DPella's technology. We have two POC on a development stage (in the energy and biotech sectors) and two NDA signed with the mobility industry. In the upcoming year, we will build more analytics into our framework to serve different business segments.

Business opportunity and call to action

We are looking for investors to grow our team and product. We need to expand our technical team to keep on building our solution and explore and develop new set of analytics that the industry requires.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF GOTHENBURG

CHALMERS
UNIVERSITY OF TECHNOLOGY

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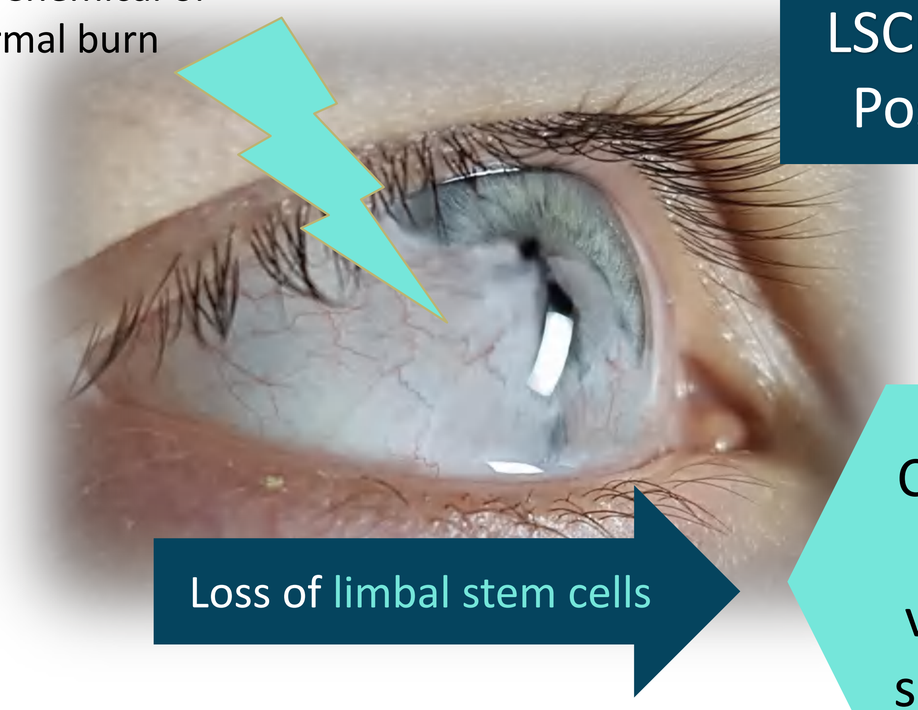
StemSight

Curing blindness with stem cells

Biotech & Pharma

Ocular trauma
e.g. Chemical or thermal burn



Loss of limbal stem cells

There is an unmet need for patients with limbal stem cell deficiency (LSCD) in both eyes.

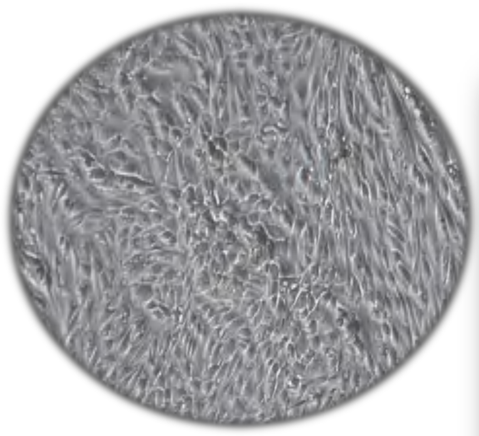
LSCD is a rare disease with a significant economic burden. Possible reimbursement price per eye is 250 k€ in EU5[1].

Corneal epithelial defect, blood vessels cover the surface of the eye

Using iPSCs allows ”off-the-shelf” type treatment:

- ✓ no tissue availability issues
- ✓ consistent quality
- ✓ high therapeutic potential
- ✓ long-term effect

The product contains 1M limbal stem cells from human iPSCs on a sheet of biodegradable carrier material



Easy to apply

[1] Market analysis by Cell and Gene Therapy Catapult, 2018, evaluated by Quality Adjusted Life Years (QALY).

Technology Description

Using human induced pluripotent stem cells (iPSCs), we can produce unlimited amounts of therapeutic limbal stem cells (LSCs) for an "off-the-shelf" type of therapy for limbal stem cell deficiency. Our production method is fast, efficient and scalable to clinical grade manufacturing. Our competitive advantage lies in the cell manufacturing efficiency, and the simple localized implantation on the clinical grade biomaterial carrier.

Intellectual Property Rights

StemSight Oy has exclusive rights to the following patents and patent applications filed under Tampere University:

PCT/FI2017/050595 (Granted in Canada, Israel, intended to grant in EPO)
PCT/FI2020/050210 (entering national phase in 10/2021)
FI20205857 (entering PCT phase 09/2021)

Freedom-to-operate analysis for limbal stem cell technology done.

Team

D.Sc.Tech
Laura Koivusalo
CEO

Prof., PhD
Heli Skottman
CTO

PhD
Anni Mörö
COO

Docent, PhD
Tanja Ilmarinen
CSO

Aapo Kiviniemi
CLO

Jyrki Liljeroos
Chairman of the Board

Current State

StemSight's first limbal stem cell product is in the Proof-of-concept phase, with long-term *in vivo* feasibility studies ongoing. Preclinical safety studies are estimated in 2023, Phase I/II clinical studies are planned to begin in 2025. The limbal product could enter the market by 2027. Our pipeline product for corneal endothelium dysfunction is entering PoC phase in 2023.

Business opportunity and Call to action

Our vision is to access the cell therapy market through the rare disease LSCD. With our pipeline technologies, we aim to produce other cell types from the same iPSCs to address the millions of patients suffering from different forms of corneal blindness.

We are looking for investors to join our future funding rounds (2.5 M Late Seed in Q1/2023) and pharma sector partners interested in co-development of iPSC-based therapies in ophthalmology / rare diseases.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

StemSight
vision unlimited

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www.stemsight.fi

NEXTCAST

Speeding up the R&D with systems toxicology-based computational solution

Biotech & Pharma

Faster development of drugs, chemicals and biomaterials

Development of drugs, chemicals and biomaterials often requires many trial-and-error experiments

Nextcast aims to speed up the R&D by reducing the number of the required experiments to a minimum

Nextcast platform

Saves time	• With highly accurate predictive toxicology models delivered by advanced AI, prioritize only the most promising experiments for further R&D testing
Saves money	• Higher return on investment as the number of required experiments reduces
Saves resources	• The number of reduced experiments is reflected in resource savings, such as animals, lab supplies and working hours
Reduces risks	• Risks and business uncertainties can be minimized as the effect and dose of the substance can already be predicted before even starting the animal and human trials

Markets and Applications

Pharmaceutical industry

- Identify and prioritise therapy targets and relevant drugs
- Examine detailed information on dosing and adverse drug effects
- Discover biomarkers
- Evaluate dose-dependent molecular alterations
- Predict long-term effects of drugs and pathogens
- Drug repositioning

Chemical Industry

- Examine detailed information on adverse effects of chemicals
- Evaluate dose-dependent molecular alterations
- Predict long-term effects of chemicals
- Discover direct implications to human diseases

Material industry

- Evaluate feature-dependent molecular alterations
- Predict long-term effects of biomaterials
- Optimize the safety of biomaterials

Technology Description

Background: Most of the currently available computational tools have several limitations. Generally, they are not applicable in the case of biomaterials and biotherapeutics, consequently, these tools do not provide an easy frame to evaluate the features and functions of these types of compounds. In addition, they provide little understanding of the underlying molecular mechanisms when evaluating the safety and the efficacy of drugs, chemicals, and biomaterials. These hamper the full exploitation of toxicogenomics-based evidence in pharmaceutical and chemical industries leading to unnecessary use of time-consuming in vitro and in vivo experiments.

Invention: Nextcast bypasses these limitations by providing standardized state-of-the-art methods and algorithms to analyze, model, and interpret toxicogenomic and cheminformatic data. With a systems toxicology-based computational strategy and AI, we can unlock the power of existing data, turning it into functional knowledge. This presents an opportunity to improve the efficiency within pharmaceutical and chemical companies by reducing the number of required experiments to a minimum.

Team

PhD, Professor
Dario Greco

PhD, bioinformatics
Angela Serra

PhD, bioinformatics
Michele Fratello

PhD student, bioinformatics
Alisa Pavel

Software developer
Arash Chaychi

Current State

Over the past 5 years, we have developed 12 unique computational tools and completed a substantial amount of scientific validation relating to our approaches. We are currently implementing the tools and the database under one software-suite, in which the tools can be used individually, or easily combined as unique pipelines to answer particular biological questions. Our current TRL is 5/6 but is expected to increase to level 7 by the end of year 2021.

Business opportunity and Call to action

Nextcast is currently looking for collaboration partners (from the pharmaceutical industry) who are interested in pilot testing our Nextcast software and providing insights from the customer perspective about our business plan. We also look forward to discuss with investors who understand the relevant industries and markets.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

Tampere University

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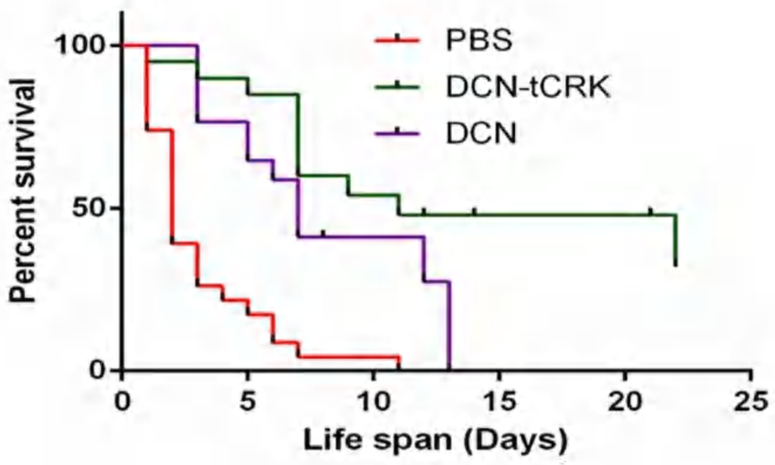
DecoDerma

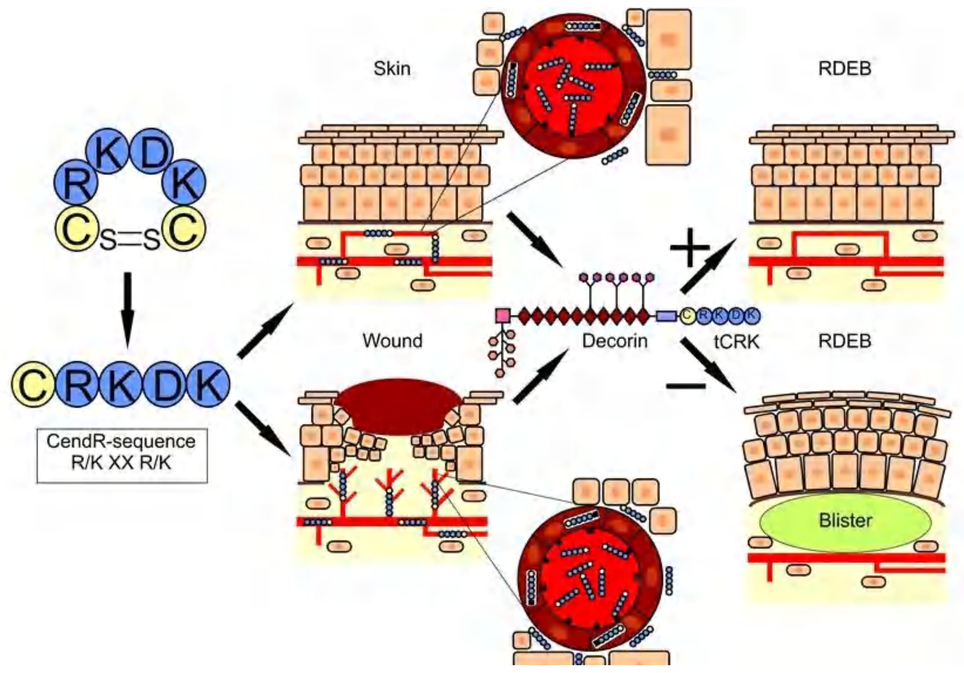
Biotech & Pharma

Best-in-class biologics therapy for Epidermolysis Bullosa

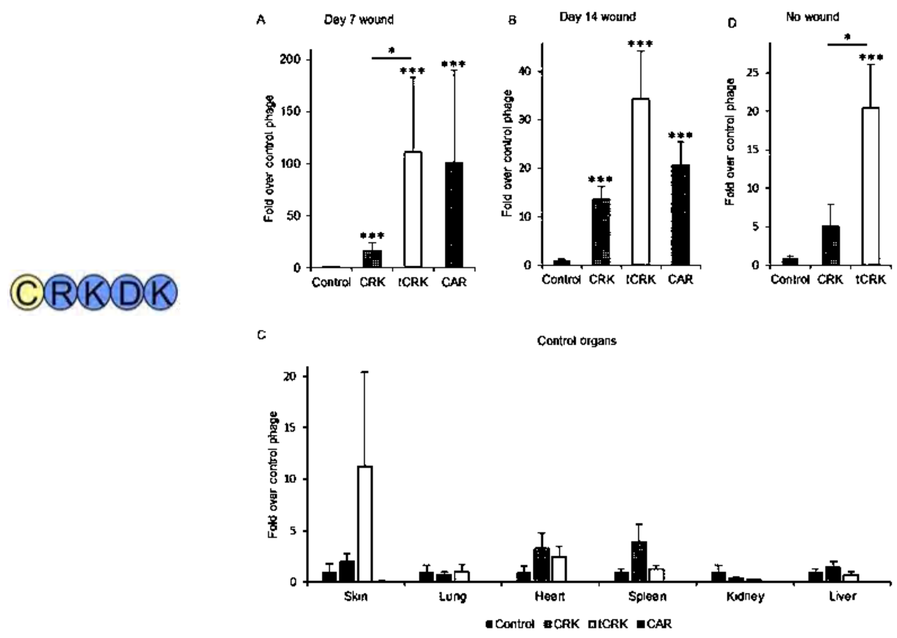
DCN-tCRK extends the survival of RDEB mice more than any previously tested therapeutic



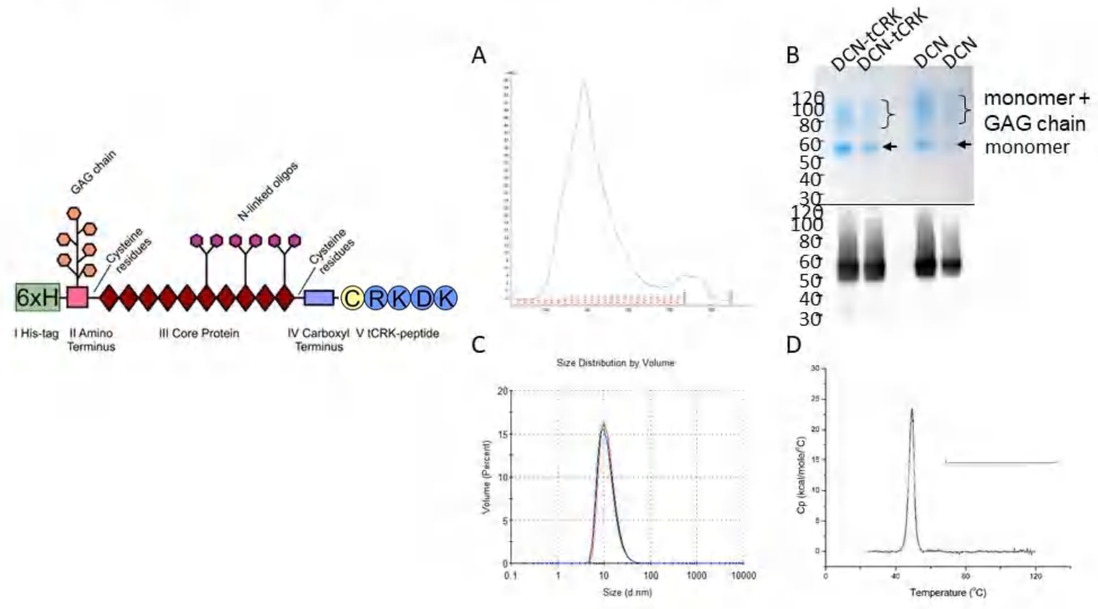
DCN-tCRK – Mechanism of action in EB



tCRK – Homing peptide toward normal skin and wounds



DCN-tCRK – Multi-functional recombinant protein



Technology Description

- Systemically administered peptide that homes to both normal skin and wounds
- Multi-functional, recombinant fusion protein that combines skin-homing peptide and active therapeutic molecule decorin, a natural transforming growth factor-β (TGF-β) inhibitor and integral structural protein for the skin
- Molecule improves survival of recessive dystrophic epidermolysis bullosa (RDEB) mice more than any other drug/stem cell (PoC-study; Pemmari et al. Mol Ther 2020)

Intellectual Property Rights

- IPR owned by Tampere University “TKS0292020 Skin-targeted multi-functional recombinant protein for the treatment of epidermolysis bullosa”
- Orphan drug-status allows exclusivity not dependent on patent

Orphan Drug Opportunity

- Significantly lower development costs with only 15-20 pts in phase 1+2 studies
- Faster clinical development with adaptive clinical trial design and few study centers

Team

Professor & Chief Surgeon
Tero Järvinen, M.D., Ph.D.
Chief Scientific officer

Consultant
Jari Pajasmaa
Business Development

Business Advisor
Juhani Lahdenperä
Board Member

Current State

- Recombinant protein production with CMO company Q3/2021
- Further toxicology and PK studies to support FDA meeting Q4/2021
- FDA pre-IND meeting Q1/2022
- Co-operation established with major epidermolysis bullosa (EB) academic research centers in Europe and in the USA
- Stanford and Freiburg EB centers chosen for phase 1+2 clinical trials
- Received > 700.000 € as research grants (non-dilutive funding)

Business opportunity and Call to action

- Final drug molecule identified and successful pre-clinical PoC carried out
- Grant funding to take the molecule to FDA pre-IND meeting (FDA endorsement for whole clinical development plan, i.e. final budget and schedule)
- Unmet medical need, no existing treatments in EB, flexible clinical trial
- Orphan drug regulatory pathway
- Orphan drug, pediatric patient population, severe, lethal disease = high price
- Team & advisors capable of taking the right steps to bring the molecule forward

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

Tampere University

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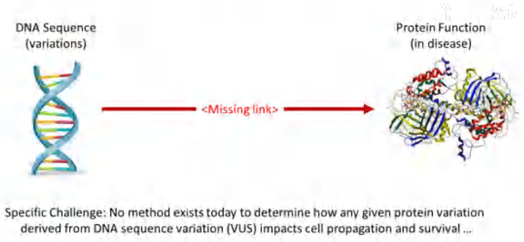
BioPhenyx (CRISPR-SurF)

Medtech & Diagnostics

Game-changer technology for personalized medicine, drug development and broad use in life science

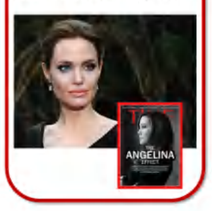
The Problem (for individual patients)



Specific Challenge: No method exists today to determine how any given protein variation derived from DNA sequence variation (VUS) impacts cell propagation and survival ...

Cancer Prognostic Unknowns

People with familial history of e.g. breast cancer seek professional guidance and answers to asses their treatment / therapy needs...

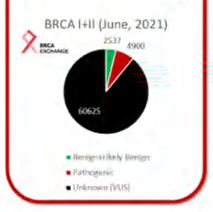


Genes are sequenced "en masse" by "precision medicine" focused companies that develop "deal packages" for gene-seq-combos..

myriad GENETICS WHEN DECISIONS MATTER
FOUNDATION MEDICINE
CeGaT

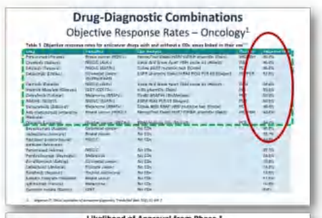
But, quality of answers offered seem less than ideal, when we look at the most recent databases of sequence derived information...

BRCA I+II (June, 2021)



Cancer Outcomes

- Cancer Therapy has in 20 years shown significant progress, not least through companion diagnostic tests & "genetic information based" prediction tools,
- Yet, drug response rates remain low, - **around 50%** - and often below, due to unknown "disease heterogeneities"...
- And, with **5.1% likelihood** of Approval from Phase I, cancer has the lowest overall success rate among the therapeutic areas addressed by the major pharmaceutical companies.



CRISPR-SurF game-changer functional genetics analysis

Genetic variant (mutation) of interest

2-3 weeks

CRISPR-SurF
Cell-based functional genetics analysis

Disease relevance & drug responsiveness defined

For the patient

- Diagnosis
- Prediction of risk
- Prediction of drug response
- Better treatment

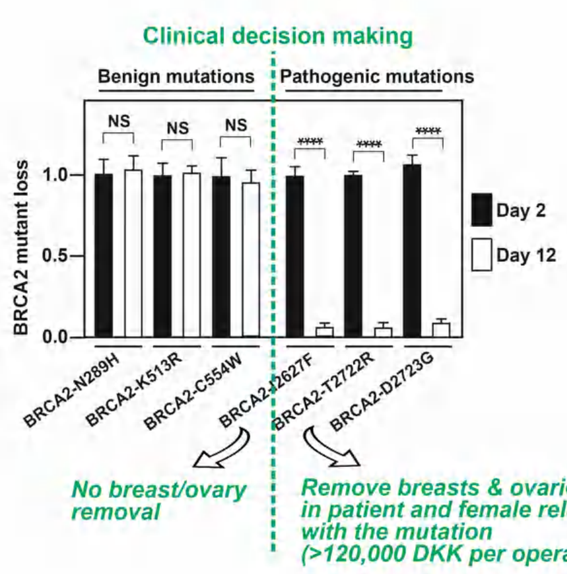
For drug development

- Testing novel therapies
- Identifying novel drug targets
- Defining drug resistance mechanisms
- Testing drug on-target action
- Stratifying patients in clinical trials
- Increasing success rates of drug programs

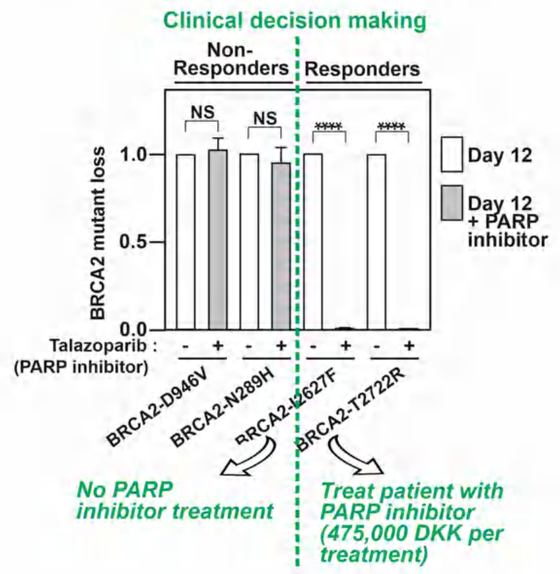
Selling points

- *5-10x faster & more cost-efficient than comparable solutions*
- *Unrivalled accuracy and reliability due to unique internal controls*
- *Unique & first-mover*

CRISPR-SurF diagnoses breast cancer



CRISPR-SurF predicts drug response (stratifies patients)



Go-to-Market Strategy: Seeking scale in operations, data-harvesting & -utilization:

1. **R&D service (Biotech/Pharma)**
2. **IVD service (LDT)**
3. **Drug (re)purposing (IP)**

2022 2023 2024 2025 2026

Technology Description

The novel CRISPR-SurF technology can determine the effect of a genetic variant and its role in disease, with unparalleled speed, cost and accuracy. It was invented based on dialogue with clinicians expressing a huge need for methods that can help solve some of the largest unmet needs in hereditary and somatic cancer diseases – i.e., which gene mutations cause cancer, and which do not – and ultimately which are suitable drug targets, and which are not. No other such method exists today. Details of the method cannot be disclosed as it is currently in patenting process.

Intellectual Property Rights

A European Patent application (EP20211801.4) on CRISPR-SurF was submitted by University of Copenhagen Dec 4th, 2020 with Frödin and Sørensen as inventors: "CRISPR/Cas screening system materials and methods". A patent search by external European patent lawyers Høiberg DK concluded that CRISPR-SurF is novel and patentable and that the broad exploitation of CRISPR-SurF proposed here can be protected.

Team

Group Leader, BRIC
Dr. Claus Storgaard Sørensen
Co-Founder, Director, CSO(*)

Head of Laboratory; BRIC
Dr. Morten Frödin
Co-Founder, Director, COO(*)

Senior Partnership Manager
Ole Bitsch-Jensen
Co-Founder, Director, CEO(*)

Co-founder Epitherapeutics
Dr. Paul A.C. Cloos
Advisor

Professor, Founder Helleday Laboratory
Dr. Thomas Helleday
Advisor

(*) = part-time

Current State

BioPhenyx (under formation) has access to directly marketable product and services. There is interest from a first pilot customer (an undisclosed Big Pharma company) – and dialogue with several larger scale diagnostic companies that are interested in engaging in further talks, when more data has been generated. Further, the team has obtained support from the HTS CRISPR facility at Biotech Research and Innovation Center (BRIC) of UCPH for setting up initial operations. With appropriate funding BioPhenyx will market its services to more customers and establish own facilities in a 2-3 year horizon.

Business Opportunity and Call to Action

BipPhenyx, as a spinout to Copenhagen University, is in the process of being established.
It is the aim of the spinout to accelerate commercialization of the technology and thus create better outcomes for patients in the future.
We are actively looking for 1) Investors from the VC community, 2) Customers from the biotech and pharma industry and 3) Business partners from diagnostics industry.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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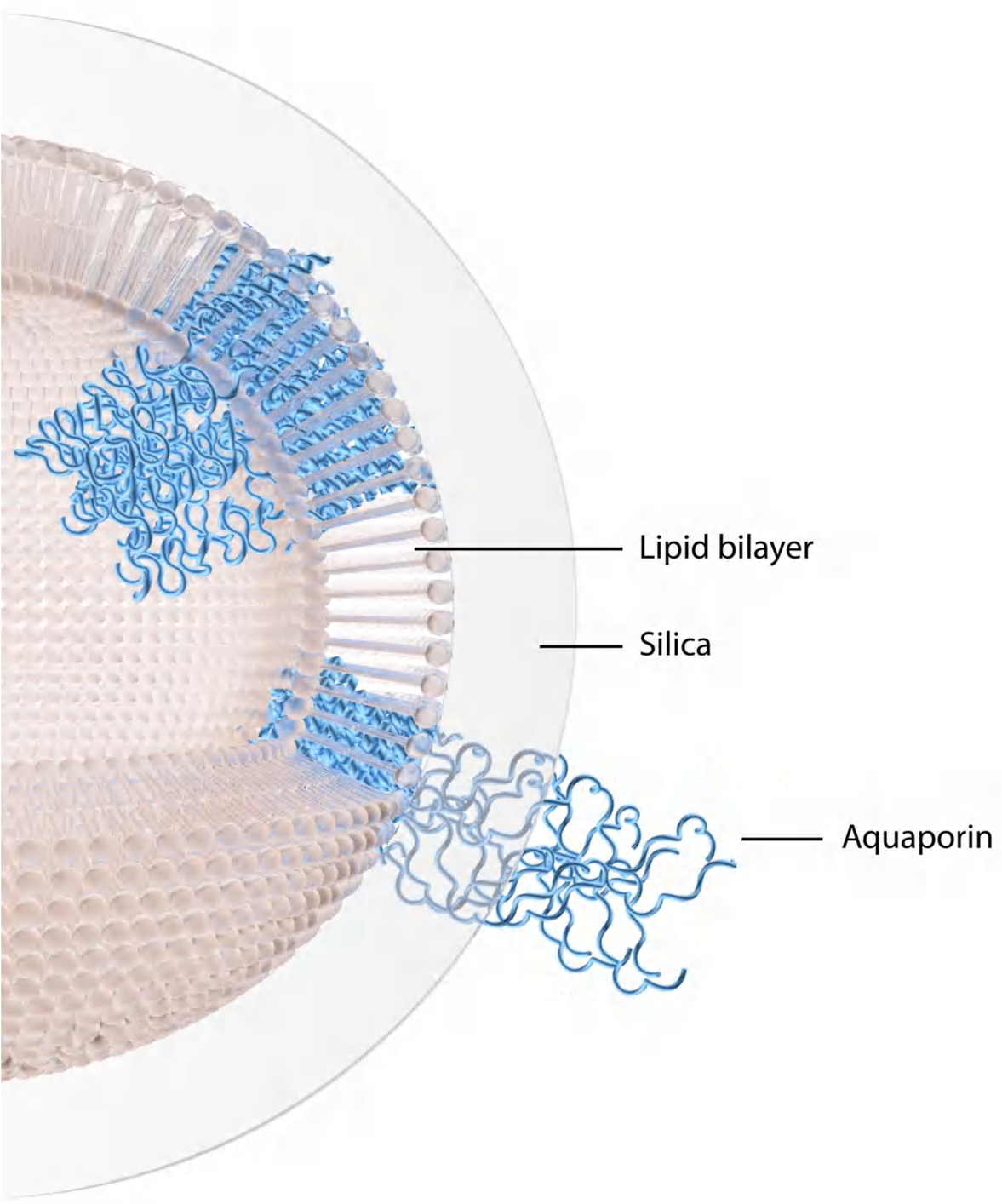
Aquammodate AB

Sustainable clean water from existing infrastructure

Sustainability



Water scarcity affects every continent, with more than 2 billion people lacking access to safe drinking water. This vital resource is limited by the fact that 97.5% of the planet's water contains high salt levels and increasing amounts of harmful pollutants, such as pharmaceutical residues and microplastics, are found in seas and lakes worldwide.

Our strength is in the capability to utilize biomimetic materials science in bringing nature's own purification approach to existing water processing infrastructure. We are aiming to boost productivity by 100x and to achieve 100% water purity.

Technology Description

The core of our proprietary technology is a water purification process based on our purification capsules that mimic the finest water purification found in nature. By using the same components (aquaporin water-channeling proteins in simplified cell membranes) that we stabilize with a thin silica coating, we are aiming to bring the extraordinary natural performance in terms of energy efficiency and water purity into man-made filters. The potential of this technology is to produce 100% pure water in a single filter pass while increasing the productivity by 100x compared to state-of-the-art technology.

Intellectual Property Rights

Aquammodate filed a PCT application in 2020 that is pending.

Team

CEO & Co-founder
Simon Isaksson, PhD

Chairman & Co-founder
Prof. Martin Andersson, PhD

Business Developer
Nima Ahmadyan, MSc

Product Developer
Jenny Perez Holmberg, PhD

Product Developer
Florian Schmitz, PhD

Board Member
Shilan Demir

Current State

Currently in prototype stage with development in-house and in 3 partnerships with membrane producers targeting desalination, food & beverage and medical dialysis. Completed accelerators Katapult Ocean, EIT Climate-KIC, and Chalmers Ventures.

The next steps are to close a seed round in Q1 2022 to enter revenue-generating pilot projects with partners.

Business opportunity and Call to action

We are looking for strategic value developers to join us in accommodating the world's need for clean water. We are looking for investors as we aim to raise a seed round in Q1 2022 in order to enter revenue-generating pilot projects with partners. We are looking for collaboration with industrial partners to further test our technology at larger scale.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

CHALMERS UNIVERSITY OF TECHNOLOGY

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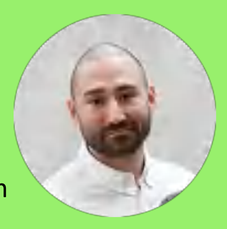


TRIPTO BIO

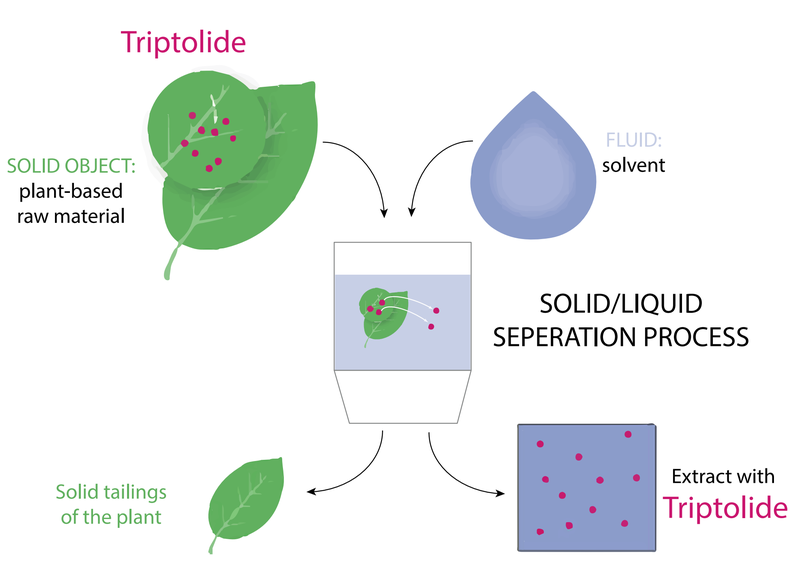
Biotech & Pharma

Sustainable and Scalable Production of Triptolide

Triptolide: A high-value natural plant product ($900/g sales price)

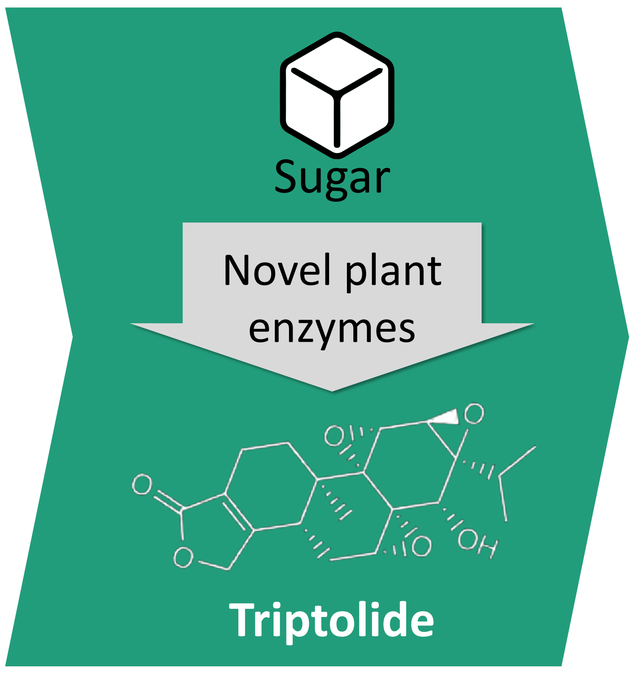
Problem: Applications restricted by cost of compound

Current method: Plant extraction

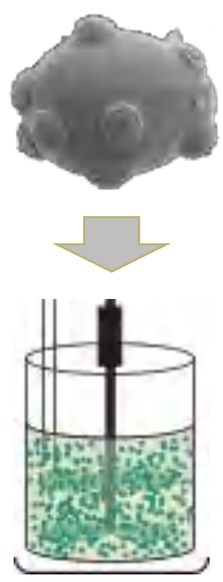


Est. production cost: $200-500/g

Scientific breakthrough: Enzymatic process



New method: Fermentation



Genetically engineered microorganism

Fermentation based production

100x reduction in production cost

Business opportunity: Growing pest market *and* great future potential

$50mill. growth market: Nonlethal rodent pest control (approved)

Future market: Treatment of SARS-CoV-2 (pre-clinical)

10X Future market: Male contraceptive (pre-clinical)

senestech
Sound science. Effective solutions.

Leading provider of contraceptive rodent pest control. Committed as customer when triptolide production is initiated.

minneamrita
enriching health, enhancing life

Drug developer using triptolide based analogs to develop treatments against SARS-CoV-2. Expression of interest.

THE LUNDQUIST INSTITUTE

Research institute initiating male contraceptive clinical trials using a triptolide analog. Dialog initiated.

Technology Description

The Chinese medicinal plant *Tripterygium wilfordii* produces the complex natural compound triptolide in minute amounts. Due to its complexity no economically viable synthetic route has been established and cost associated with production from plant extraction are very high.

With state-of-the-art genome engineering we have established a microorganism that has the potential to produce triptolide in a cost-effective manner. A proof-of-concept strain has been established and the imminent technology development awaiting includes scaling and optimization of triptolide from the established microorganism strain.

Intellectual Property Rights

International PCT application filed. P024260DK1. Priority date: 27th of August 2020
The PCT covers the method for cost effective triptolide production in our engineered microorganism strain used.

Team

Assistant Professor, PhD
Johan Andersen-Ranberg
Founder, CEO, Inventor

Scientist, Post doc.
Nikolaj Lervad Hansen
Lead Scientist

Professor
Birger Lindberg Møller
Scientific Advisor

Startup founder, ex-BCG
Jon Christensen
Business Advisor

PhD, CSO RiverStone Bio
Jørgen Hansen
Bioproduction advisor

Serial entrepeneur
Neil Goldsmith
Strategic Advisor

Current State

Proof-of-concept microbial strain for triptolide production established. Pilot scale production fermentation tested. Current activities include:
1) Optimization via genetic engineering of the microbial production strain
2) Identification of suitable fermentation parameters for pilot scale production
3) Development of cost-efficient downstream processes to meet required product specifications

Business opportunity and Call to action

With a strong team of diverse skillsets in place, we aim to establish the company TriptoBIO. Using the patented technology developed at University of Copenhagen TriptoBIO will produce triptolide at scale for identified and future customers. Three costumers for fermentation based triptolide have been identified, whereof two have expressed intent to purchase when product meet their target specification e.g. purity.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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EvodiaBio

Biotech & Pharma

Natural aroma blends for sustainable brewing and responsible drinking

| High-quality | Consistent | Sustainable |

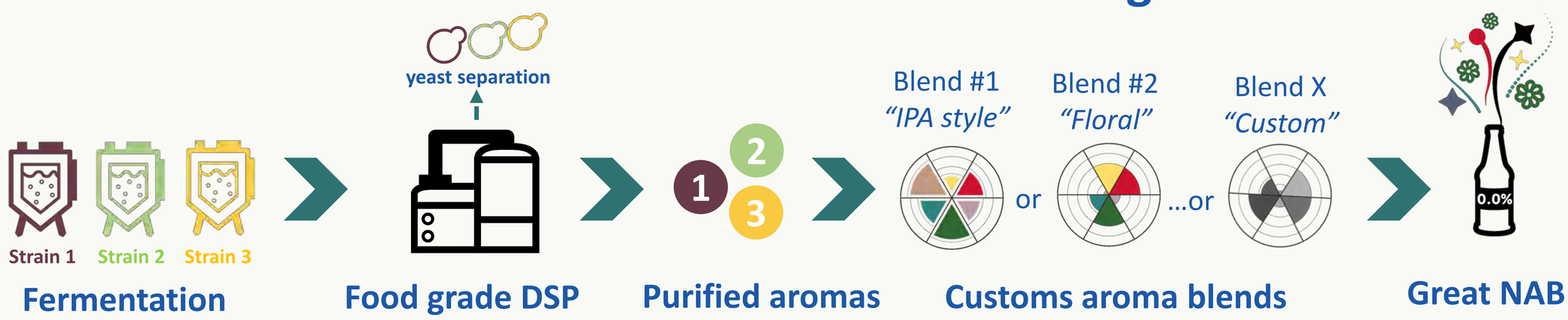
Non-alcoholic beer (NAB) – a challenging product…

- Substantial loss of aroma during production
- Product is sensitive to off-flavors
- More than 50% of consumers consider NAB as a low-quality product

…in a rapidly growing market with high customer demands

- ~20% of worldwide beer volume by 2026
- Exponential increase in new product launches
- Hoppy flavor increasingly popular among customers

EvodiaBio make non-alcoholic beers taste great



Business opportunity

Main market
Aroma hops

Annual production
>80.000 tons

Addressable market
~200 M USD

Product

To solve the quality problem of NAB, we introduce **YOPS,** a natural and organic solution that mimics the aroma profile of hops. **YOPS** are tailor-made blends of natural aromas that can substitute (fully or partly) fresh hops, pellets, or hop oil. Uniquely, **YOPS** can be used after the brewing process, making it a particularly attractive and cost-effective solution for producing high aroma NAB.

Technology Description

Evodia has developed a unique and patented technology that enables the production of hop aroma using yeast. Our yeast strains outperform current state-of-the-art biotechnological approaches by 10- to 15-fold, and we have validated our technology with more than 8 key hop aroma molecules. This process is combined with an efficient, food-grade and free-of-chemicals downstream purification compatible with the food and beverage industry.

Intellectual Property Rights

PCT application filed in 2021 (DK2021/050098). Exclusive licensing agreement with UCPH.

Team

Simon Dusséaux
CEO, PhD

Victor Forman
CTO, PhD

To be hired
Regulatory consultant

Jarne Elleholm
Executive chairman

Sotirios Kampranis
CSO, Professor

To be hired
Sensory scientist/Master brewer

Current State

We have analyzed the aroma profile of several commercial beers and popular hop varieties using advanced analytical chemistry and used this data to generate blends that mimic aroma hops in a sensory manner. Prototype blends have been confirmed to improve the sensory qualities of non-alcoholic beers both by analytical chemistry, as well as panel tasting done by a large Danish brewery, and two independent craft breweries. Next steps include regulatory approval and production upscaling.

- We envision the launch of an MVP during summer 2022.

Call to action

Thanks to support from the Novo Nordisk BioInnovation institute, EvodiaBio is now able to perform the necessary regulatory studies and develop the manufacturing process.

We are currently looking for potential commercialization partners (both in biomanufacturing and brewing), as well as investors within the food and beverage industry.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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Biotech & Pharma

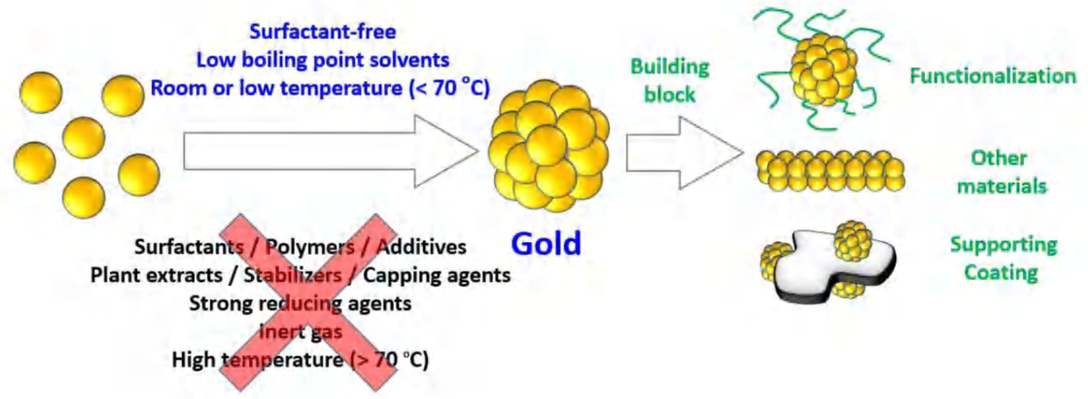
2Gold2Go

Advanced Production & Technologies

Simple, cost and energy efficient production of gold nanomaterials

Some of the many applications of gold (Au) nanomaterials include medical diagnosis and treatments, catalysis, energy conversion, water/air remediation, sensing, electronics, optics, antibacterial applications, etc.

To generate value from gold nanomaterials, simple and scalable production methods are a must.



Technology Description

We developed a simple yet scalable and robust method to obtain size controlled surfactant-free colloidal gold nanomaterials.

The method only requires:
➔ Few, safe and cheap chemicals
➔ Safe and cheap solvents (low boiling point mono-alcohols and water)
This approach requires:
No hazardous reducing agents
No surfactants, additives, polymers, DNA, plant extract or other stabilizers

The production can be performed at room (20-25 °C) or moderate temperature (< 70 °C).
The gold nanomaterials are readily available in solutions or after solvent removal.
The use of low boiling point solvents greatly facilitate any processing of the nanomaterials e.g. for coating or other surface functionalization.

Intellectual Property Rights

Priority application filled August 2021
Surfactant-free colloidal synthesis of gold based nanoparticles

Team

Assistant Professor
Jonathan Quinson
Scientific Consultant
(Inventor)

Associate Professor
Kirsten M. Ø. Jensen
Scientific Consultant

Current State

Detailed control of the synthesis parameters and their influence
Size control in the range 5-30 nm using mixtures of mono-alcohols and water.
Scaling up to 1 L of solution / 100 mg of Au.
Suitable for multi-metallic nanomaterials comprising gold.
TRL: 4 - including controlled reproducibility and scaling up.

Future work: further scaling up

Business opportunity and Call to action

Because of the broad applicability of this technology, we are interested in licensing the technology to industrial partners across a broad variety of industries.

We are also interested in projects for the joint development of the technology towards industrial applications (TRL 5 and above).

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

vidiPIX Pattern and color recreation

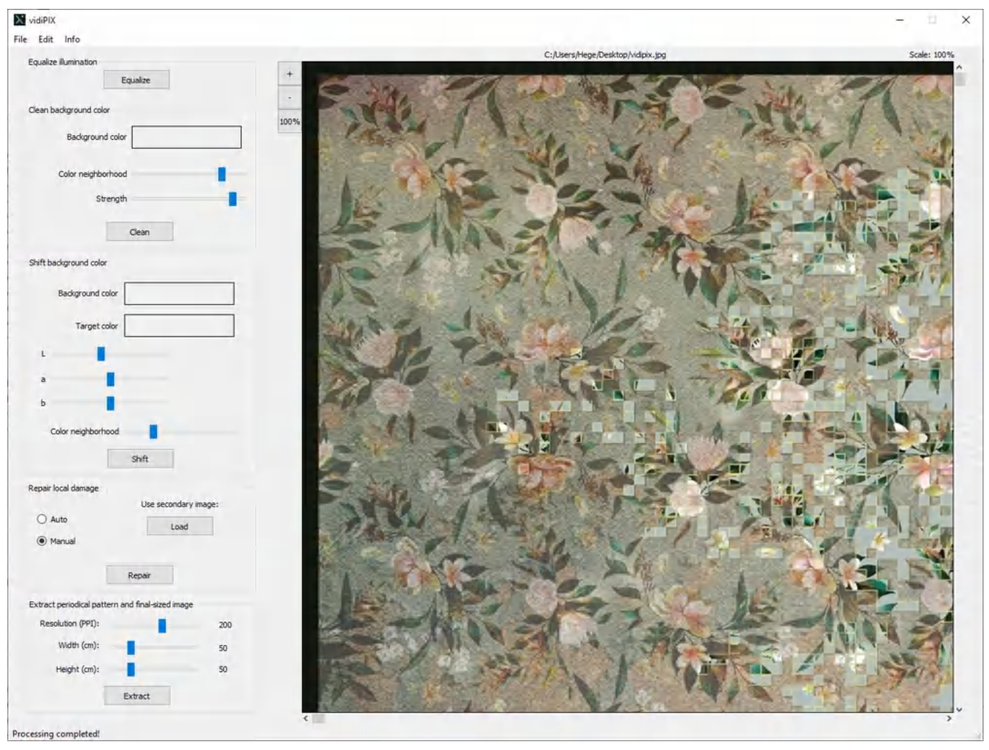
Digitisation, AI & Robotics

solution for restore and digitizing old wallpaper and repetitive patterns

Save 90 % of time!

The invention is a software solution for restoring and enhancing images of damaged wallpapers for the purpose of print reproduction and sale. Today designers use hundreds of hours working on issues that will be automated with our solution.

The value of the software lies in the specialized enhancement operations for wallpaper images, which saves 90 % of time compared to using a general-purpose image editing software. Further additions to improve the software have been identified and will be added in the future.



Technology Description

The R&D project was initiated after a dialogue with Canon Norway, where Canon stated a need for a solution that could speed-up and automate the wallpaper image enhancement process. Wall covering is a rapidly growing business within the interior design world and one of the biggest drivers of this growth is the transition from traditional to digital printing. Canon has a keen interest in facilitating and offering better solutions to their customers to sell more of their core product lines.

The technology is based on pattern recognition, color science and image processing expertise and can be transferred to other applications with repetitive pattern reproduction such as textiles

Intellectual Property Rights

The solution is developed at the Colourlab at NTNU, where researchers saw a potential in using their core competence within color imaging, image processing and pattern recognition to develop algorithms that automates the process of recreation and enhancement of wallpapers.

Team

Professor and inventor
Marius Pedersen

Postdoc and co-inventor
Vlado Kitanovski

Sales and marketing Canon
Anton Strand

Partnerships
Aasne Tveter Fiskum

Current State

Canon and several designers have already tested the current prototype and shown great interest as it can save them 90 % of their time when working on restoring wallpaper.

We have implemented our machine learning models into a prototype and are currently targeting potential customers to test our system.

Business opportunity and Call to action

We are currently searching for pilot customers for testing our solution and industrial partners for licensing.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

NTNU
Norwegian University of Science and Technology

Contact information
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Innovation manager
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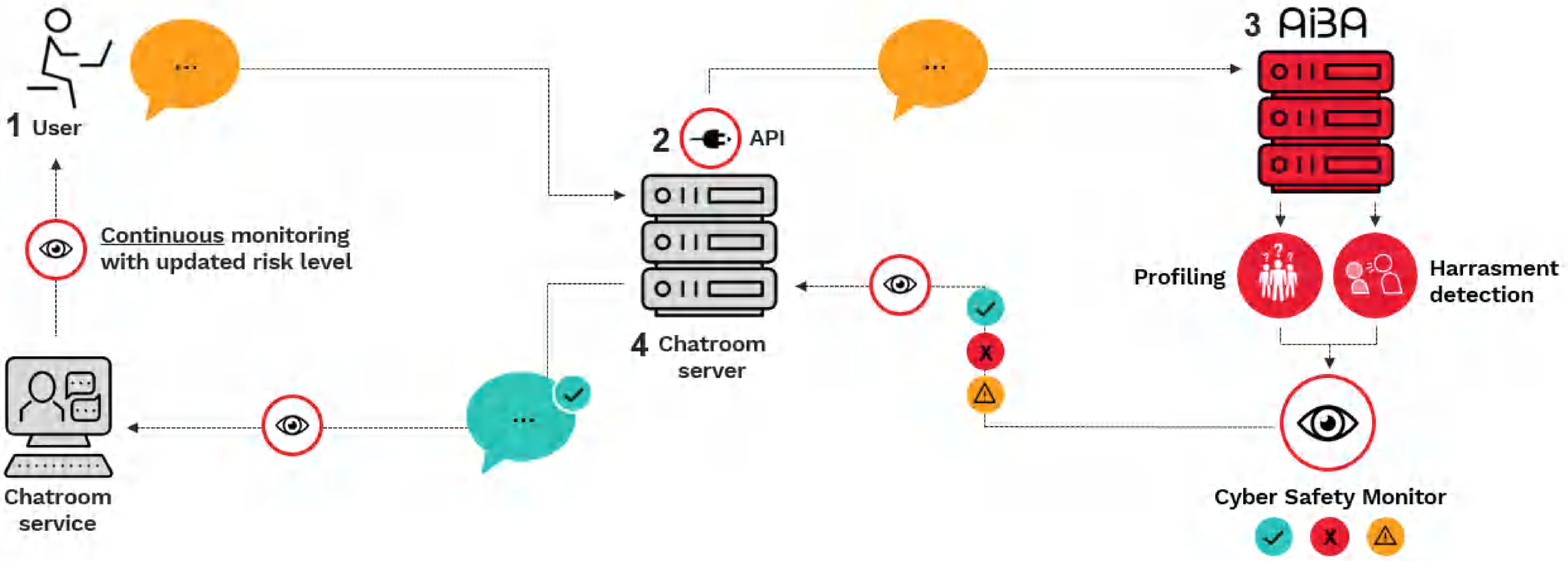
Digitisation, AI & Robotics

AiBA – Author input Behavioral Analysis

Real-time, continuous, multimodal detection of sexual predators and toxicity online

Save costs, improve efficiency and safety of your chatrooms

AiBA evaluates massive amounts of content and accurately preselects conversations that need to be investigated by moderators.



Technology Description

Our unique SaaS multimodal approach, combined with machine learning makes for a new era in chatroom moderation. AiBA will connect to your system through an API and can be tailor-made to suit your specific needs.

AiBA continuously monitors the content of the conversations and the typing rhythm-behaviour in order to detect false gender and age profile information. If AiBA detects potential cybergrooming, the dialogue will be red-flagged for moderators and subject to further investigation. This preselection will save resources and allow moderators focus on the conversations that matter.

Intellectual Property Rights

AiBA is the result of several years of research conducted at the Norwegian Biometric Laboratory at the Department of Information Security and Communication Technology at the Norwegian University of Science and Technology.

Team

Professor and inventor
Patrick Bours
Tech lead

PHD and co-inventor
Muhammad Ali Fauzi
Data scientist

PHD and co-inventor
Parisa Borj
Data scientist

Hege Tokerud
CEO

Current State

We have achieved accurate profiling of sexual predators by analysis of less than 40 messages on average in a conversation. This enables us to identify predators in real-time.

We have implemented our machine learning models into an API and are currently targeting potential customers to test our system.

Business opportunity and Call to action

We are in the process creating a spin-off company that will bring the technology to market.

We are currently searching for pilot customers, recruiting team and targeting investors with industry expertise.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

NTNU
Norwegian University of Science and Technology

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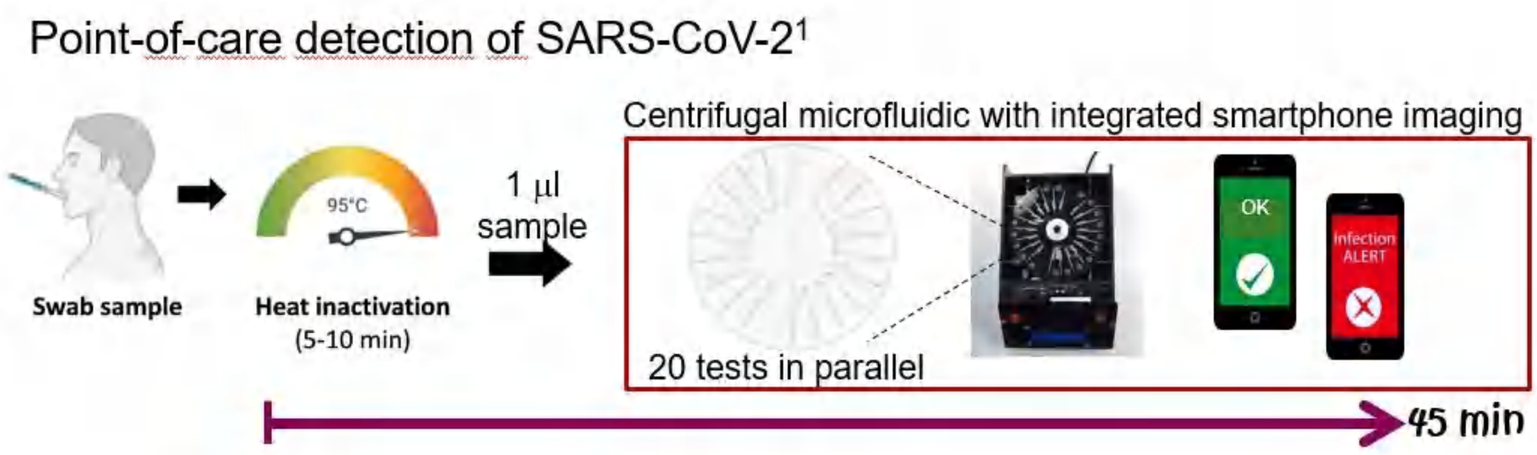
Afiyet AB

Low-cost and scalable diagnostics platform for infectious diseases

Medtech & Diagnostics

Frequent testing is a key strategy to control the spread of COVID-19, an estimated 500 million COVID-19 diagnostic tests will be needed in Low/Middle income countries in the next 12 months.



Our point-of-care platform is ideal for mass testing since it offers:

- **Speed** - Tests can be done at the point-of-care in less than 1 hour
- **Simplicity** - Simple optical readout via a smartphone camera – does not require much technical training from the end-users
- **Scalability** - Uses scalable reagents and materials making it cost-effective for large-scale production

Technology Description

We have developed a rapid (<45 min), smartphone imaging-based centrifugal microfluidic platform for point-of-care isothermal detection of SARS-CoV-2 and other pathogens. Our method is based on isothermal RT-LAMP approach for fast (30 min) and low-cost RNA-based diagnosis of COVID-19 patients.

- No need for RNA extraction kit (sample prep not required, only a 10 min heat inactivation)
- No need for advanced PCR machines or skilled personnel
- Isothermal - only 30 minutes for the entire amplification process
- Image from a smartphone - easy to interpret the result
- 20-60 samples can be processed at the same time

Intellectual Property Rights

Swedish priority patent application filed in autumn 2020, now entering into PCT phase.

Team

Prof.
Aman Russom
CTO & Chairman

PhD
Ines Pinto
R&D Manager

PhD
Ruben Soares
R&D Manager

Title
TBA
CEO

Current State

Proof of concept of the signal enhancement and measurement system.
Proof of concept of the miniaturised RT-LAMP assay.
Prototype instrument for the heating, rotor control, and detection with smartphone.
Clinical validation with 160 clinical sample from Karolinska University hospital with very promising results: sensitivity 96% and specificity 100% for the clinically important viral loads.
In advanced discussions with commercial testing lab in Mexico about pilot and commercialization.

Business opportunity and Call to action

We have verified that our method and technical platform works and that there is a pressing need for this exact solution in low and middle income countries (e.g. Latin America and Sub Saharan Africa). **We are now looking for investors to help us take the technology to a final product and build up the team and business development efforts as soon as possible.**

An estimated 500 million COVID-19 diagnostic tests will be needed in LMICs over the next 12 months, 75% of which in decentralized settings

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

KTH VETENSKAP OCH KONST

Contact information
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CEO, Professor
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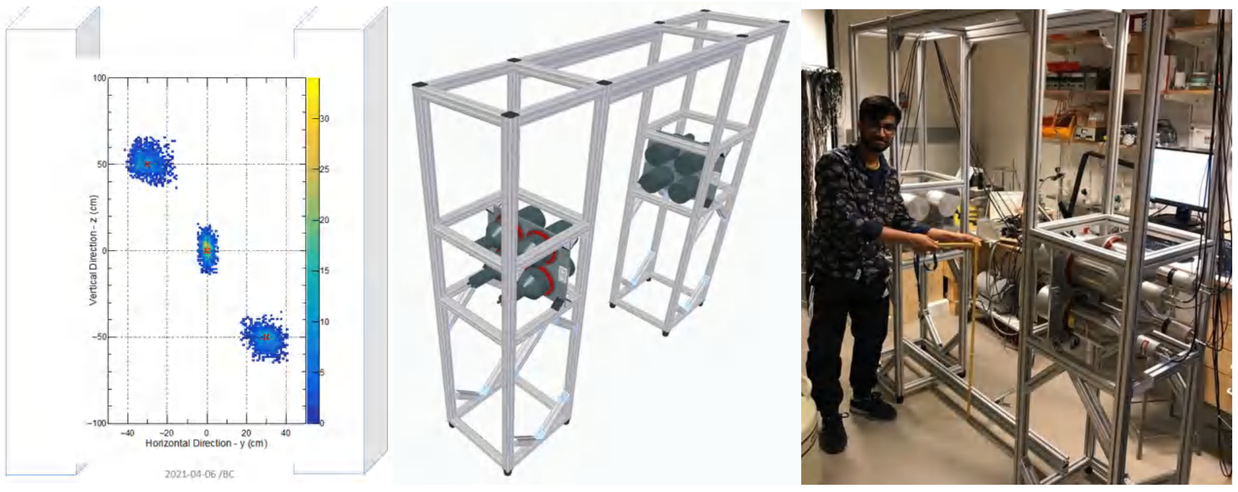
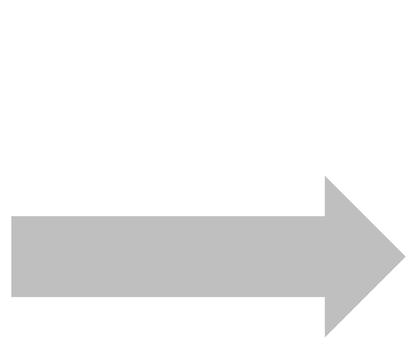
RadSensE

Advanced Production & Technologies

Radiation Sensing Systems with Enhanced Detection Capabilities





Images show Mirion products - for illustration purposes only

Very high sensitivity method to detect and localize radioactive material in applicatins such as security checkpoints, logistics hubs, nuclear fuel handling, environmental monitoring, etc. Flexible detector design, set-up, and geometry combined with unique proprietary signal processing algorithms enables detection, identification, and localization in one device with less or no false alarms.

Technology Description

The core technical elements of the detector system are:

- Specific sensor element segmentation that can be configured for the specific application using off the shelf hardware (organic scintillators)
- Advanced signal processing algorithms that measure fast time and energy correlations between gamma rays and neutrons emitted from Special Nuclear Materials (SNM)
- Highly accurate proprietary simulation software to design detectors of different geometries for different applications

The technology can be implemented in different types of radiation detection devices and systems.

Intellectual Property Rights

Patent application on the core technology filed in EU, USA, China in December/January 2020/2021. Original priority date late 2018.
Patent application owned by KTH Holding.

Team

Professor
Bo Cederwall
KTH

IP Manager
Gustav Notander
KTH Holding

Current State

Scalable prototype system in operation that meets and exceeds (by far) industry standard for gamma-emitting radionuclides (ANSI N42.35-2016). Verified to work with hard to detect radiation contaminated material on-site. TRL 5
Proprietary simulation software verified towards real data.
Positive first feedback from potential customers (focus Asia) and potential partners/licensees

Business opportunity and Call to action

We are looking for partners/licensees to integrate the technology in different radiation detection products such as Radiation Portal Monitors (RPM), scanning equipment for environmental monitoring, nuclear fuel control, etc.

Estimated global market size for detection portals + mobile scanning equipment: 1-10 BUSD and it's a growing market in both national security segments and industrial segments.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

KTH VETENSKAP OCH KONST

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Gustav.notander@kthholding.se

A3

Svenska LaserFabriken AB

Converting light to fit your needs

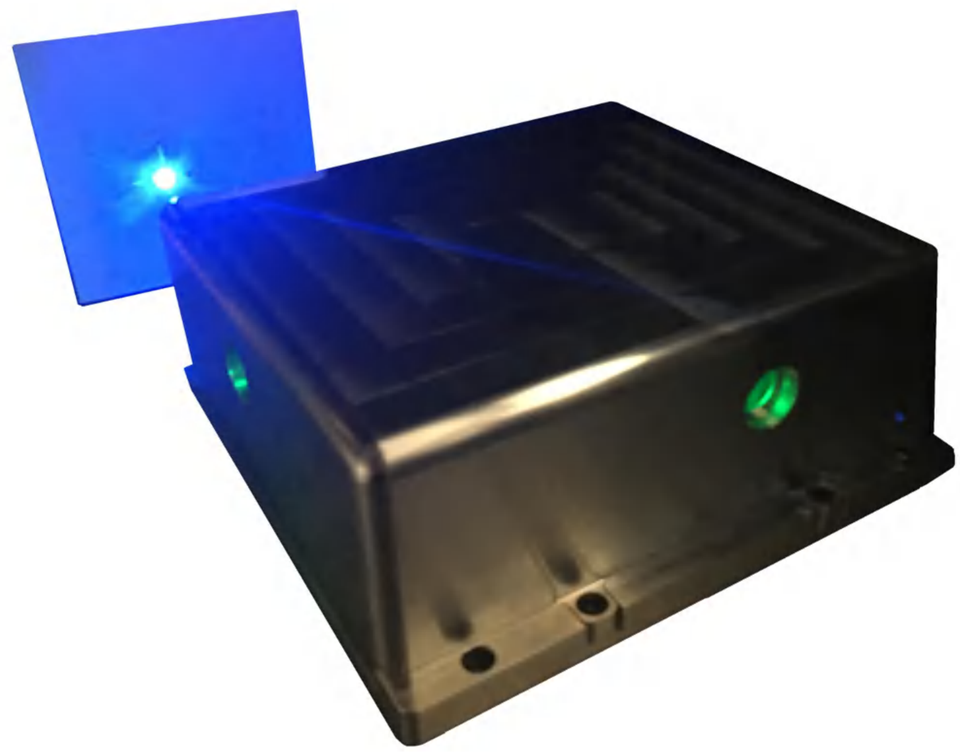
Advanced Production & Technologies

SVENSKA LASERFABRIKEN AB

Ultrafast near-IR lasers are often used in micromachining due to their low thermal impact on the material. The market size for ultrafast lasers in material processing is about $600 million p/y.

Ultraviolet (UV) lasers can produce smaller features then near-IR due to their shorter wavelength and higher absorption

Our first product, **UVMAX**, is a stand-alone product that converts a customer's existing IR laser to UV.



UVMAX offers:

- High conversion efficiency (>25%)
- High output power (>2.5 W UV)
- Easy alignment

Technology Description

Ultraviolet (UV) laser light is advantageous and necessary in many applications. These applications range from lithography and micromachining to fluorescence imaging.

Most ultrafast lasers currently available on the market operate in the near-IR. Our product, UVMAX, changes the wavelength of light to the UV region by nonlinear processes. The existing laser's beam is simply directed into the UVMAX module where multiple optical components and nonlinear crystals have been carefully aligned. The module then produces two outputs, one UV beam and one with the remaining IR together with green light for alignment.

Intellectual Property Rights

The technology is built on unique know-how and is protected by trade secrets

Team

Staffan Tjörnhammar, PhD
Chief Executive Officer

Valdas Pasiskevicius, Prof.
Chairman of the Board

Fredrik Laurell, Prof.
Board member

Max Widarsson, M.Sc.
Chief Engineer

Andrius Zukauskas, PhD
Board member

Carlota Canalias, Prof.
Board member

Current State

UVMAX has been demonstrated to efficiently and reliably convert near-IR pulses to the UV in multiple research labs. The next step for UVMAX is to be deployed for long time tests at customers' premises. This has been delayed due to Covid-19, but as restrictions are easing up, it will take place in the coming months. The system is at TRL 5/6.
Svenska LaserFabriken also has other products in the lower TRL stages. These products range from lasers operating at unique wavelengths with applications in environment, production and health.

Business opportunity and Call to action

Svenska LaserFabriken AB has secured funding for market analysis, to be able to go to clients and test the UVMAX prototype at their facilities. **Svenska LaserFabriken AB is currently looking for commercialization partners and sales support.**

The largest market for UVMAX is in material processing where the market size for ultrafast lasers is about $600 million annually.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

KTH VETENSKAP OCH KONST

Contact information
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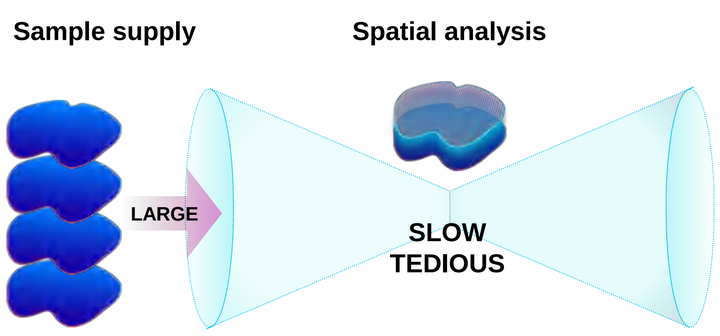
Instant spatial biology &
Instant hyperplexed multiomics platform

Biotech & Pharma

Cell mapping today: slow & complex

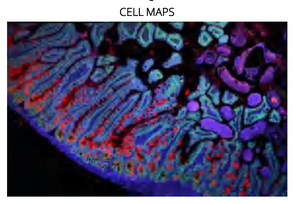
Fueling the field



Done by core facilities or complex machines.
Takes too long time!

Output

CELL MAPS



- Genes to Drugs
- Regenerative Medicine
- Disease mechanisms
- Drug discovery
- Drug Toxicity
- Drug efficacy & resistance
- Diagnostics

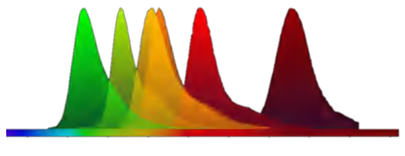
Cell mapping tomorrow: Fast & Simple

We break the barrier of multiplexing. From 5 to **beyond 100 targets!**

Fluorescence based analyses are fundamentally limited by the number of colors that can be used simultaneously

Our innovation is based on our novel **supercharged** nanoprobes – **Nanopixels**.

Organic fluorophores
have broad emissions, overlap limits multiple colors

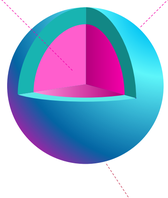


No sequencers
No expensive machines
Just your microscope

10x cheaper,
>5x faster than sequencing

Core Particle

Complex structure that enables >100 COLORS which is a challenge with small particle sizes



Functional Coating

High performing coating that enables 100% SPECIFIC binding utilizing DNA/antibody probes

Size

The size is kept within a range that allows cell penetration and in-situ detection or detection ex-situ (for example RCPs)

Markets

Multiplexed diagnostics needs
20-50+ target detections

$1B USD — **CELL MAPPING (IN-SITU)**
In-situ targeted spatial transcriptomics

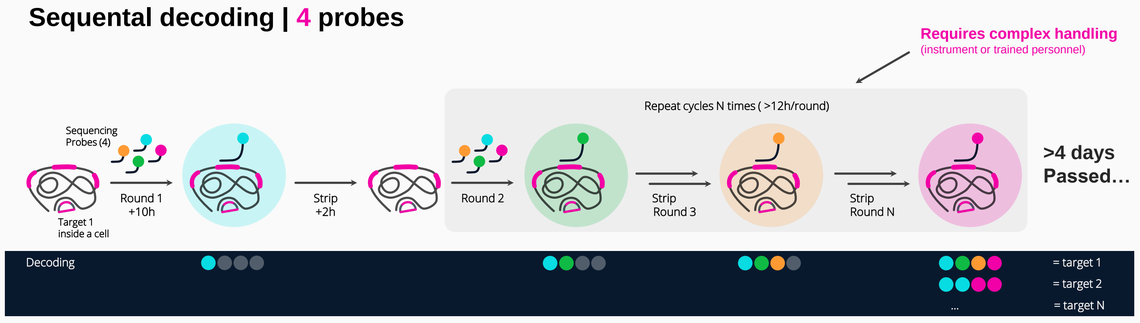
$26B USD — **INFECTIOUS DISEASES**
COV, SARS, MERS
Sepsis, UTIs
Antimicrobial resistance

$6B USD — **ONCOLOGY (EX-SITU)**
Ex-situ gene profiling for characterization of tumor biology, progression and therapy interaction

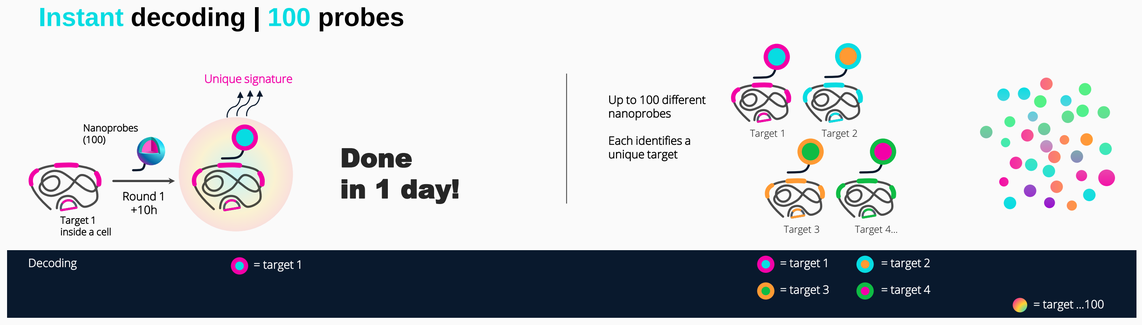
By 2026-2027

Instant decoding vs. sequential

Sequental decoding | 4 probes



Instant decoding | 100 probes



Technology Description

We break the barrier of fluorophore multiplexing with our innovative nanoprobes (Nanopixels). The Nanopixels technology enables more than **100 simultaneous colors** compared to the conventional limit of ~5.

Our NANOPIXELS will replace the need for sequencing, both in tissue but also in-vitro.

Intellectual Property Rights

Method application filed in Q1 2020.
1-2 new patent filings underway.
IP rights owned entirely by company.

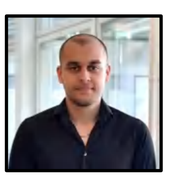
Team

Umear Naseem
CEO & Founder

Bo Hammarlund
Business Development

Prof. Mats Nilsson
Scientific Collaborator

Ruben Soares, PhD
Head of Applications



Samuel Narmack
R&D Chemist

Heba Asem, PhD
R&D Chemist

Current State

TRL: 4
Prototype recently finished showing excellent performance.
Next step is to establish a beta product to initiate sales. Current activities will focus on marketing product.

Business opportunity and Call to action

APLEX Bio is a spin-out from SciLifeLab, part of KI Innovations, and will develop its technology to market stage while building up sales.
We will raise 5-10M EUR to finalize a beta product in our series A.

We also seek industrial partners in need of rapid and cheap highly multiplexed genomics/proteomics analysis, both in tissue but also in-vitro.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

Contact information
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CEO
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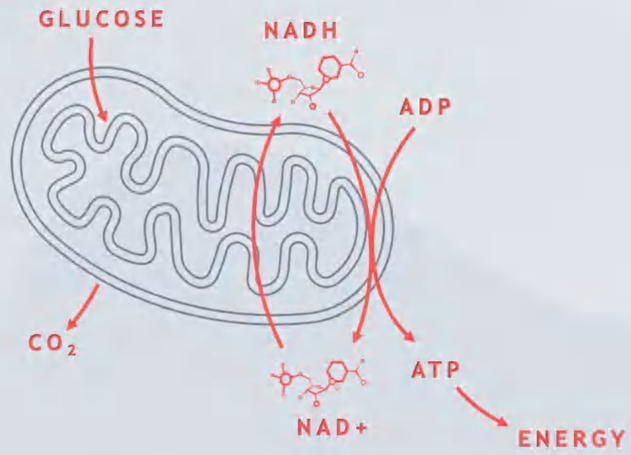
umear@aplex.bio

NADMED

Accurate and scalable measurement of NADs with standard lab equipment

Medtech & Diagnostics

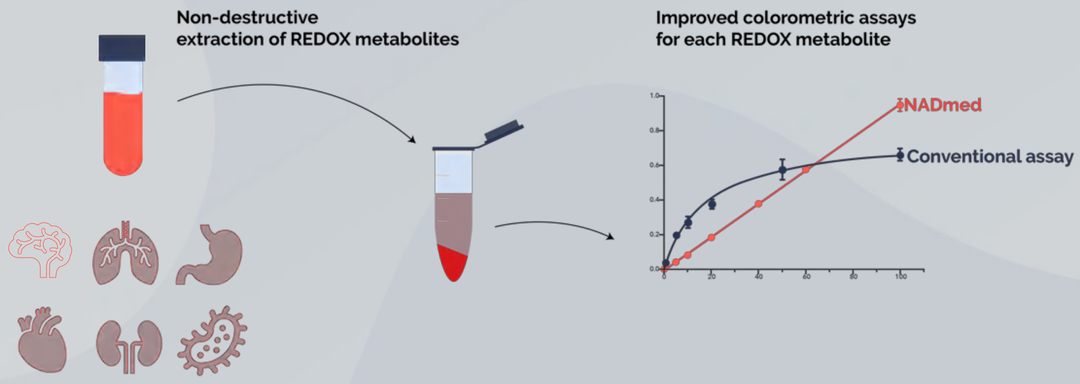
NAD IS VITAL TO LIFE



In every cell of every living thing.

NADMED TECHNOLOGY

THE FIRST SCALABLE NAD TEST FROM BLOOD



PROMINENT SCIENTIST TOUT NAD AS THE MOST IMPORTANT MOLECULE FOR LONGEVITY

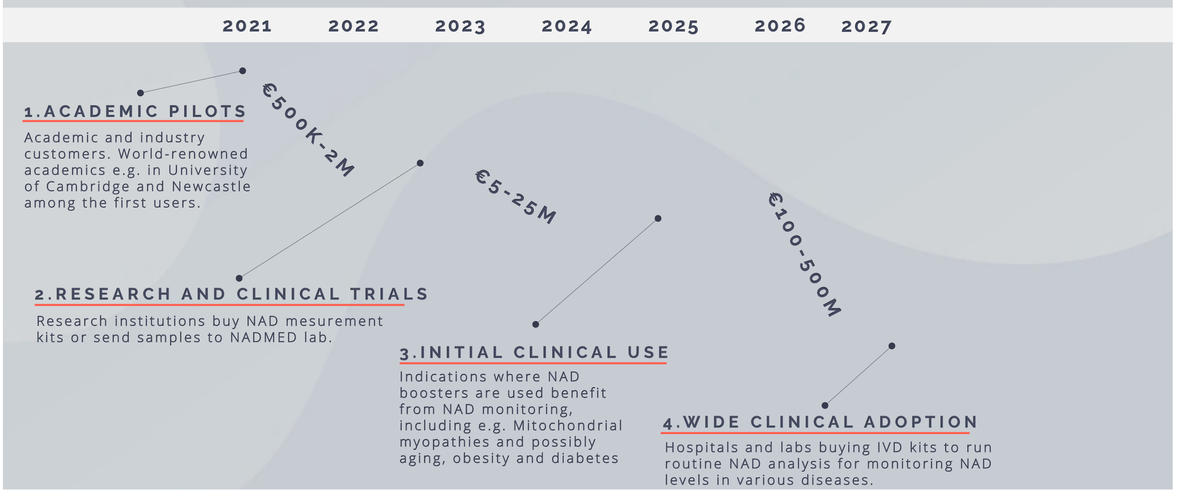
"NAD+ levels decline during ageing, and alterations in NAD+ homeostasis can be found in virtually all age-related diseases, including neurodegeneration, diabetes and cancer.

Katsyuba et al., 2020 in Nature Metabolism

"Restoration of NAD+ levels in old or diseased animals can promote health and extend lifespan, prompting a search for safe and efficacious NAD-boosting molecules.

Luis Rajman (Harvard Medical School) et al., 2018 in Cell Metabolism

MARKET OPPORTUNITY



Technology Description

Background: Redox balance in every cell of human body is regulated by endogenous derivatives of vitamin B3 called pyridine nucleotides or NAD metabolites. These NAD metabolites are indispensable for cell function, because they mediate all the vital energy in metabolic reactions. Illnesses consume NAD+, but this deficiency can be treated with high doses of vitamin B3 (niacin) or NAD boosters like NMN or NR. Current methods are expensive, not high-throughput and not able to analyze all NAD forms from blood.

The invention: NADMED is the only available technology that can reliably analyze all NAD metabolites from a single blood sample and be provided as an In Vitro Diagnostic kit. NADMED 1) enables to screen for individuals with treatable NAD deficiency, 2) serves as guideline for treatment with NAD boosters, 3) enables to monitor supplementation efficacy and dose adjustment, 4) can be used in drug discovery, e.g. for metabolic diseases, and 5) eventually, as a clinical tool in care and disease management.

Intellectual Property Rights

Family of three patents covering the key components has been filed in PCT application.

Team

Jari Närhi, MSc
CEO

Anu Wartiovaara, MD, Professor
Chairperson of the Board

Jana Buzkova, PhD
COO

Liliya Euro, PhD
Chief Scientist

Current State

The product and service are ready for commercialization. The assay has been provided as a service to several leading research institutions globally and used as a clinical tool at Helsinki University Hospital.
Prototype kits have been shipped to early customers, with good results. Preparations for scalable manufacturing are underway.

Business opportunity and Call to action

NADMED will be spun out as a company by the end of the year. The company´s portfolio will include **1) analytical service** for research institutions, **2) research use only kit** that can be used in any research lab, and **3) In Vitro Diagnostic kit for NADs** (in development) for clinical labs in large hospitals. A key concern for us is finding suitable early-stage investors for the company based on novel science and proprietary method, and a specialist in QMS and IVD certification.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

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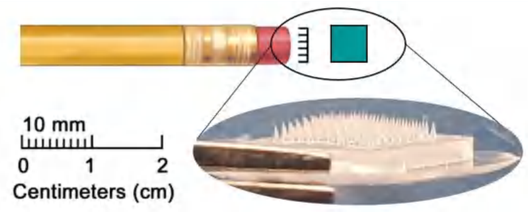
Microneedle skin patches

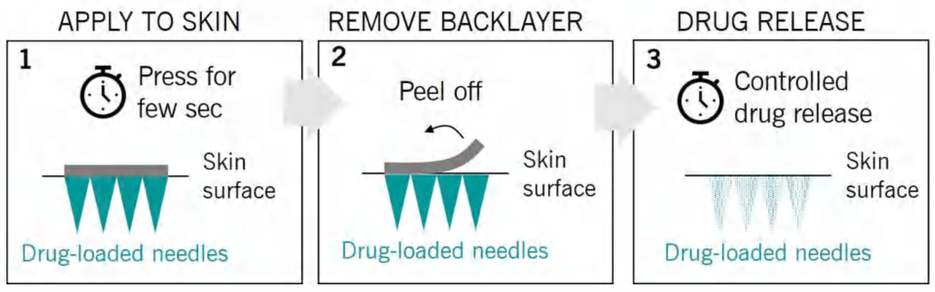
Painless injections for self-medication.

Biotech & Pharma

Problem

Injections are painful. An estimate of up to 30% of people experience needle phobia. Injections require trained personnel for administration and expensive cold chains are needed for transport and storage. To remedy these shortcomings, we are developing Microneedle Skin Patches, the next generation of injection technology. Microneedle Patches can be easily administered by anyone, anywhere.



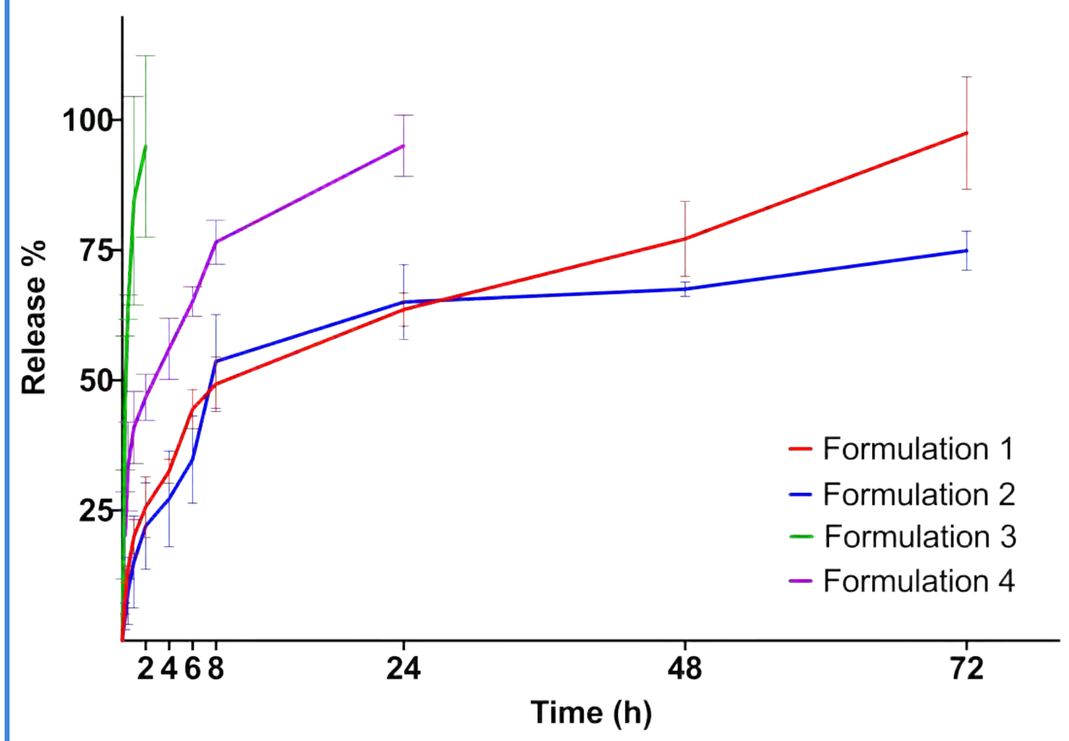


Advantages

- Alternative to injections
- Universal drug delivery – any drug can be loaded
- Easy to apply – no training needed
- No cold-chain – initial shelf life up to 6 months
- Painless – apply and forget
- Biofriendly
- Prototypes targeted to two vetcare applications
- EU+US market values of 200 M€ and 130 M€
- Possibility to expand to human healthcare

	INJECTIONS	MICRONEEDLES
TRAINED PERSONNEL	✗	✓
PATIENT COMPLIANCE	✗	✓
SAFETY	✗	✓
PAINLESS	✗	✓
ROOM TEMP. STORAGE	✗	✓
HIGH BIOAVAILABILITY	✓	✓
HIGH DOSAGE	✓	✗

Controlled drug release



Controlled drug release allows fast or sustained release up to 72 hours. Advanced release strategies are also possible.

Technology Description

Our core product is a microneedle skin patch – a pharmaceutical delivery device that can provide painless injections. Microneedle skin patches represent the next generation of a drug delivery technology to replace injection needles, allowing the transdermal delivery of drugs by painless injection.

A patch consists of a base layer with hundreds of micron-sized dissolvable needles arranged on its surface. The patch has the size of a fingertip and the drug is contained inside the microneedles. **Contrary to conventional injections, the application of microneedles is painless, can be administered by untrained people or patients themselves, and the logistics are not dependent on complex and expensive cold-chain storage**. The application of the patch is extremely simple: one presses the patch against the skin, removes the back layer, thereby leaving the needles inside the skin where then the needles dissolve to release the drug in a controlled manner. After that, the patch can be disposed, since the materials used are biofriendly.

Intellectual Property Rights

Utility patent application will be filed in Q4 of 2021.

Team

Professor
Hélder A. Santos

Assistant professor
Mohammad-Ali Shahbazi

Postdoctoral scientist
Flavia Fontana

Commercialization specialist
Dr. Kajsa Kajander

Postdoctoral scientist
Nesma El-Sayed

PhD student
Carmine D'Amico

PhD student
Khalil Elbrady

Commercialization specialist
Dr. Andrea Dichlberger

Current State (TRL3)

- Two prototypes for veterinary markets – preclinical *in vivo* studies starting in Q4 of 2021.
- Creating *in vitro* data for the utility patent – allows administration of any drug.
- Traction: customer and end-user surveys ongoing.
- Market research ongoing.
- Patent landscape: investigation of the state-of-the-art concluded, surveillance ongoing.
- **Next steps**: investigate regulatory pathway, plan and test scalability into mass production, recognize potential investors and collaborators from the industrial pharma sector.

Business opportunity and Call to action

- We are looking for healthcare-oriented investors to help us propel to the next level after preclinical evaluation and spinout.
- We are also looking for pharmaceutical companies that are interested in microneedle technology and co-creation projects to develop solutions that fit their business interests.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

HIS HELSINKI INNOVATION SERVICES

BUSINESS FINLAND

SANTOSLAB

Contact information
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Commercial champion
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antti.rahikkala@helsinki.fi

Uute Scientific Oy

Biotech & Pharma

Life without immune-mediated diseases

Nearly half of the people suffer from diseases caused by own immune system due to overly clean way of living and eating. There are 150 diseases including e.g. Type 1 Diabetes, allergies and asthma.

Solution is patented Reconnecting Nature™ forest microbe powder as added to consumer goods boost immune system and reduces probability of getting such diseases.

Business model is ingredient branding and licensing the use of ingredient to companies with existing customer base. Licensed products on the market since October 2020 now 7 customers and 17 products

Technology Description

Immune modulation technology was developed in Business Finland financed project by University of Helsinki and University of Tampere. Today it is also researched in Karolinska. It is based on combining nature-based materials with different microbiological composition into a homogenous, uniquely rich and diverse extract. Next Generation Sequencing is used to verify the diversity.

Extract is currently available in live or inactivated powder form in desired particle size suitable for consumer goods. The diversity and safety are monitored by external laboratories. Actual consumer product are developed by our distributors or directly by customers.

Intellectual Property Rights

Patent filed in 2016. Intention to grant received 4.6.2021 by EPO (EP 17832972.8).
USA (US 16/466,405) and Canada (CA3,046,168) are Pending

Reconnecting Nature™ is our registered trademark

Team

From left:
Rita Nordin,
Chief marketing Officer

Olli Laitinen,
Chief Scientific Officer

Oliver Boldt
Chief Sales Officer

Kari Sinivuori
Chief Executive Officer

Heikki Hyöty,
Board Member, Professor of Virology

Aki Sinkkonen
Board Member, Principal Investigator

Current State

Our business model is ingredient branding and we have 10 license agreements and 7 companies have already launched 17 products in 3 verticals (cosmetics, animal product and textiles) mainly in Finland and UK. We are to start co-operation with food industry and University of Helsinki to launch the next vertical by 2024. Additional discussion ongoing regarding development of products under medical devices regulation. We focus on the extract and our customers bring new products to their verticals, which allows us to launch more that one new product every month to end consumers.

PRE IPO round of 2M€

So far we have raised 700k€ and our customers have launched 17 product in Finland and England. Now we are running a financing round of 2M€ to convert Fortune 500 prospects into customers and make necessary preparations for IPO expected in 2023/24.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

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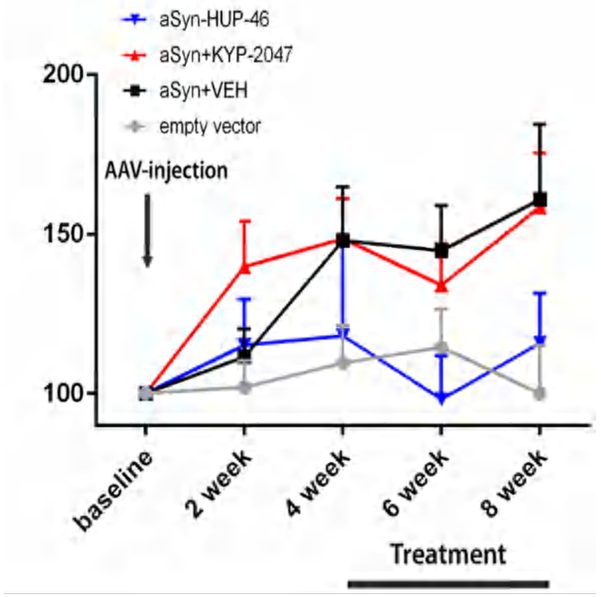
NeuroPREP

Stopping Neurodegeneration

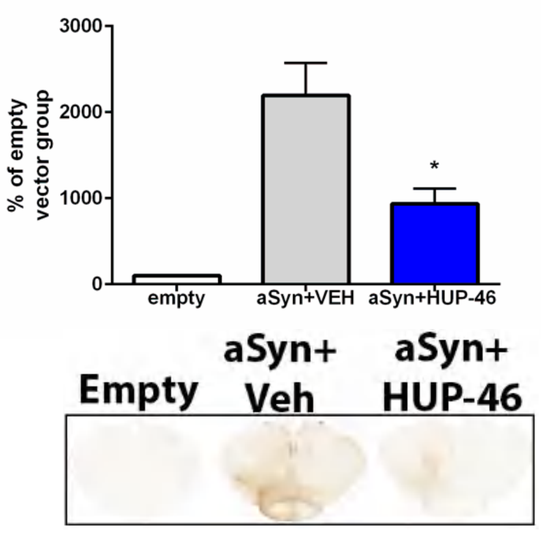
Biotech & Pharma

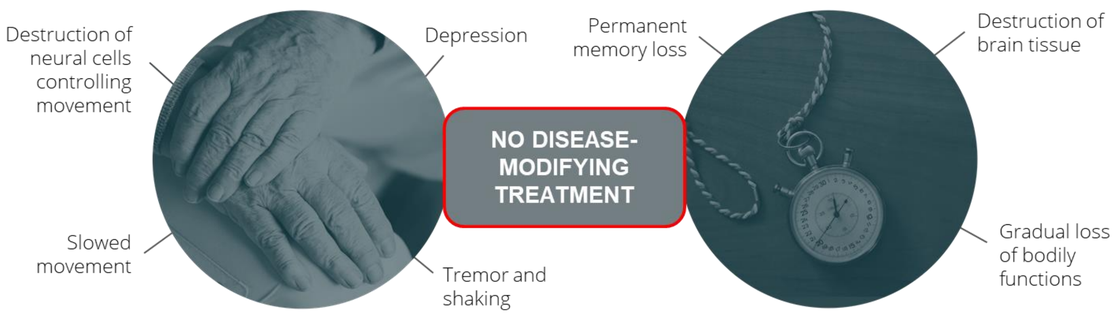
PREP ligand (HUP-46) on AAV-A53T-alpha-Syn mouse model

Cylinder test



Insoluble alpha-Syn

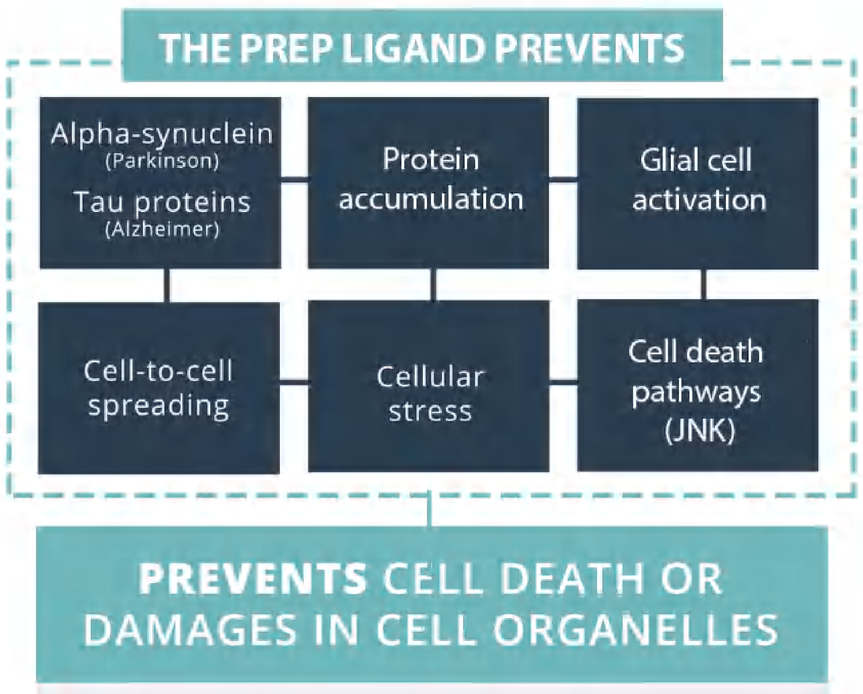




PARKINSON'S DISEASE
10 million patients worldwide

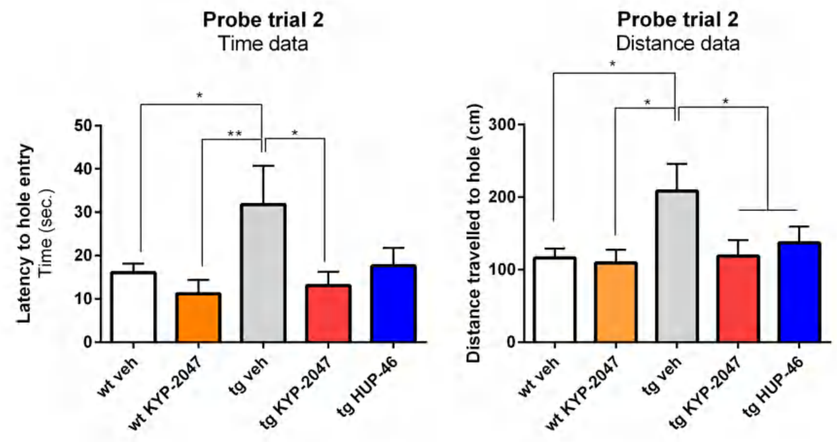
ALZHEIMER'S DISEASE
50 million patients worldwide

THE PREP LIGAND TARGETS MULTIPLE DISEASE PATHWAYS WITH A SINGLE COMPOUND

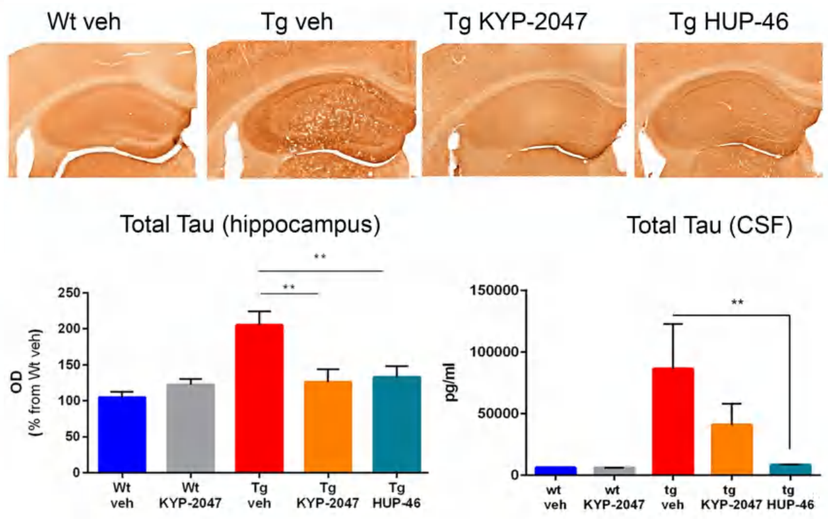


PREP ligand (HUP-46) on Tau transgenic mouse (PS19)

Barnes Maze



Tissue and CSF Tau



Technology Description

Prolyl oligopeptidase (PREP) ligands modulate protein-protein interactions formed by PREP with other proteins, such as alpha-synuclein, Tau and protein phosphatase 2A. This leads to reduced protein aggregation, enhanced autophagy and decreased ROS production. Our results also show that PREP modulation can reduce the load of propagating fibrils and reduces cellular stress pathways like JNK. Additionally, novel ligands have different mechanism-of-action compared to earlier PREP inhibitor compounds.

The lead compound HUP-46 has shown disease-modifying effects in animal models of Parkinson's (unilateral AAV-A53T-aSyn mouse model) and Alzheimer's disease (PS19 mouse, treated for 4 weeks starting from 5.5 months of age). HUP-46 is verified to pass BBB, and it is specific for PREP.

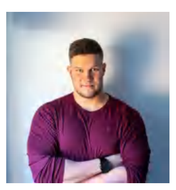
Intellectual Property Rights

IPR is owned by University of Helsinki. Patent clarification has been done, and the patenting process will be initiated fall 2021.

Team

PI of NeuroPREP
Prof. Timo Myöhänen

Co-PI of NeuroPREP
Dr. Erik Wallen



Master of All Methods
Dr. Tommi Kilpeläinen

Master of MedChem
M.Sc. Henri Pätsi

Wizard of Pharmacology
M.Sc. Tony Eteläinen

Commercial Champion
M.Sc. Samuli Auno

Current State

We have in vivo proof-of-concept data on the efficacy of our lead compound, HUP-46, on Parkinson's and Alzheimer's disease. Additionally, preliminary off-target analysis and metabolic stability in vitro has been studied. Next steps before clinical stage include:

- Comprehensive off-target screening
- In vivo pharmacokinetics
- In vivo ADME and toxicity studies

Business opportunity and Call to action

We are looking for out-licensing opportunities from pharmaceutical industry or investors for spin-out company. For further details, contact Timo Myöhänen (timo.myohanen@helsinki.fi) or Kajsa Kajander, Helsinki Innovation Services (kajsa.kajander@Helsinki.fi)

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

Contact information
Timo Myöhänen
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+358-50-5641426

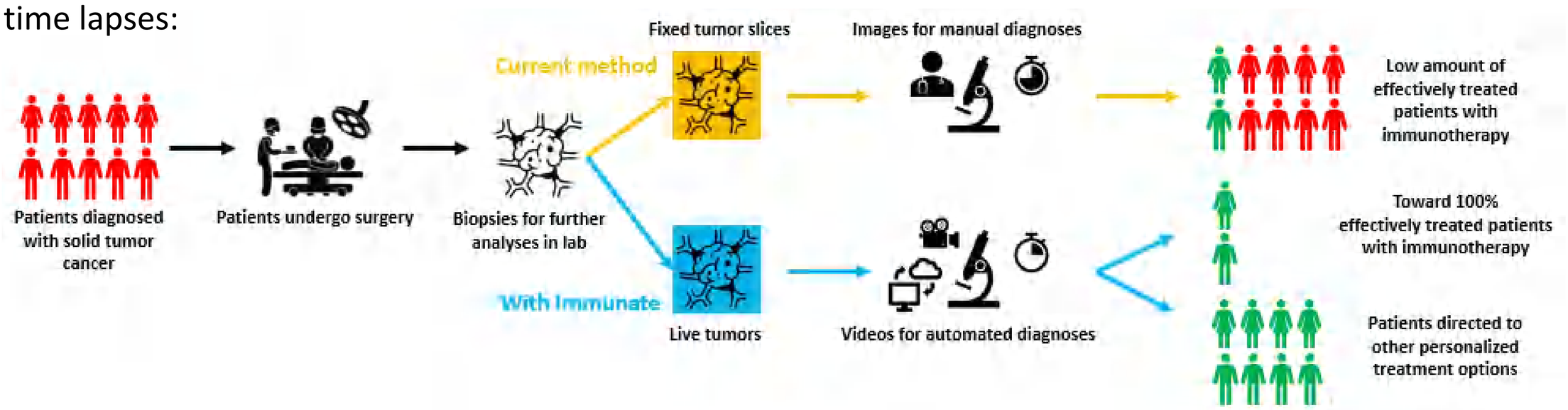
Immunate

Personalize solid-tumor-cancer treatments

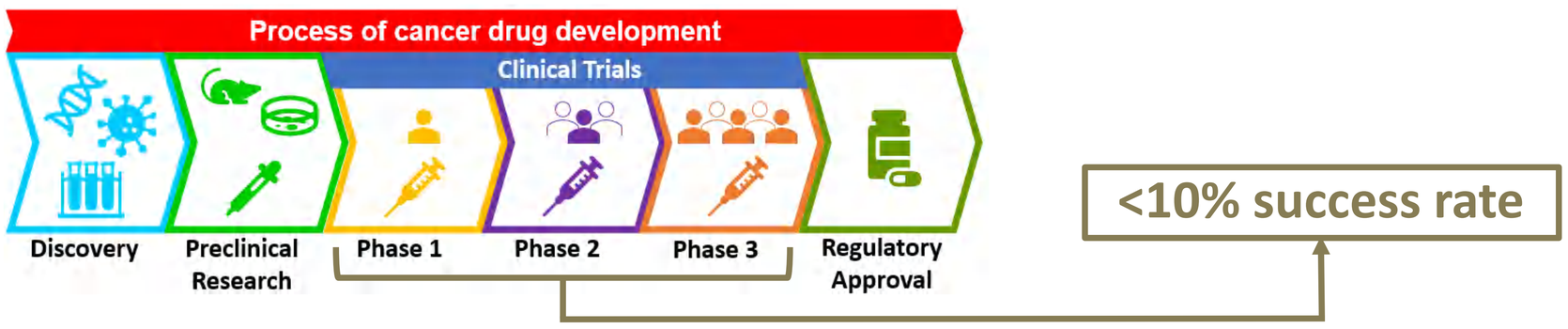
Medtech & Diagnostics

We are aiming to solve two major challenges related to solid-tumor-cancer treatments: (1) a low durable response for immunotherapies, and (2) a low success rate of clinical trials during cancer drug developments. We have two promising innovations that are aimed to tackle both challenges.

1. Only 15-20% of the patients treated with immunotherapies achieve durable responses. Current diagnostic tests fail to determine if the patient's response will be durable. We are developing a novel in vitro diagnostic (IVD) test that has the potential to accurately predict the response of the patients for selected immunotherapies. The **grand goal** is to ultimately achieve the following improved scenario using live tumors and time lapses:



2. Clinical trials of cancer drugs have a success rate of less than 10%. This is due to the high number of potential drugs that progress from the preclinical phase but fail to be effective for patients. Our microscope-integrable instrument is aimed to enable an enhanced accuracy in the use of 3D cell cultures as preclinical drug models for solid tumor cancers. Therefore, the innovation has the potential to increase the clinical trials' success rate.



Technology Description

Both innovations are compatible with the standard microscopes used in pharmaceutical and pathological laboratories.

1. The IVD test under development is based on a live surgical tumor biopsy, to which different types of immunostaining and drugs can be added. An automated software will analyze the dynamic microscope time-lapse images from the live tumors.

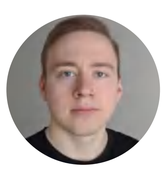
2. The microscope-integrable instrument is a magnetic micromanipulator. This micromanipulator generates spatially controlled magnetic fields within the 3D cell culture, prepared together with biocompatible magnetic probes. The fields displace the probes, and the displacements are captured by a microscope camera. An automated software provides a mapping of the mechanical properties of the 3D cell culture, which relate to its structural characteristics.

Team

Principal Investigator
Juho Pokki, PhD
Medical engineering

Principal Investigator
Pauliina Munne, PhD
Cancer biology

Postdoc
Mari Kielosto, PhD
Cancer biology


PhD candidate
Ossi Arasalo
Machine learning

PhD candidate
Arttu Lehtonen
Biophysics

Business Developer
Sven Lanens, MSc

Business Developer
Toni Korpivaara, DVM

PhD candidate
Linda Srbova
Chemistry

PhD candidate
Ujjwal Aryal
Bioimaging

Current State

1.We have already successfully developed a method to grow live tumors based on breast cancer tissue from 259 different patients and this will soon be published. Currently we are discovering potential biomarkers, developing the automated software and a protocol for the time-lapse imaging

2.Experiments with the microscope-integrable instrument have been published in a peer reviewed article. Currently, we are improving the automated software and executing more experiments with a variety of 3D cell cultures.

Business opportunity and Call to action

Immunate is currently a Research to Business project led by Aalto University and Helsinki University and is funded by Business Finland. A potential outcome of the project is to establish a startup in Q4 2022. For the potential startup, we are seeking for investors and partners to join us and to help us transform our innovations into scalable products and services.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

Aalto University

UNIVERSITY OF HELSINKI

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Business Developer
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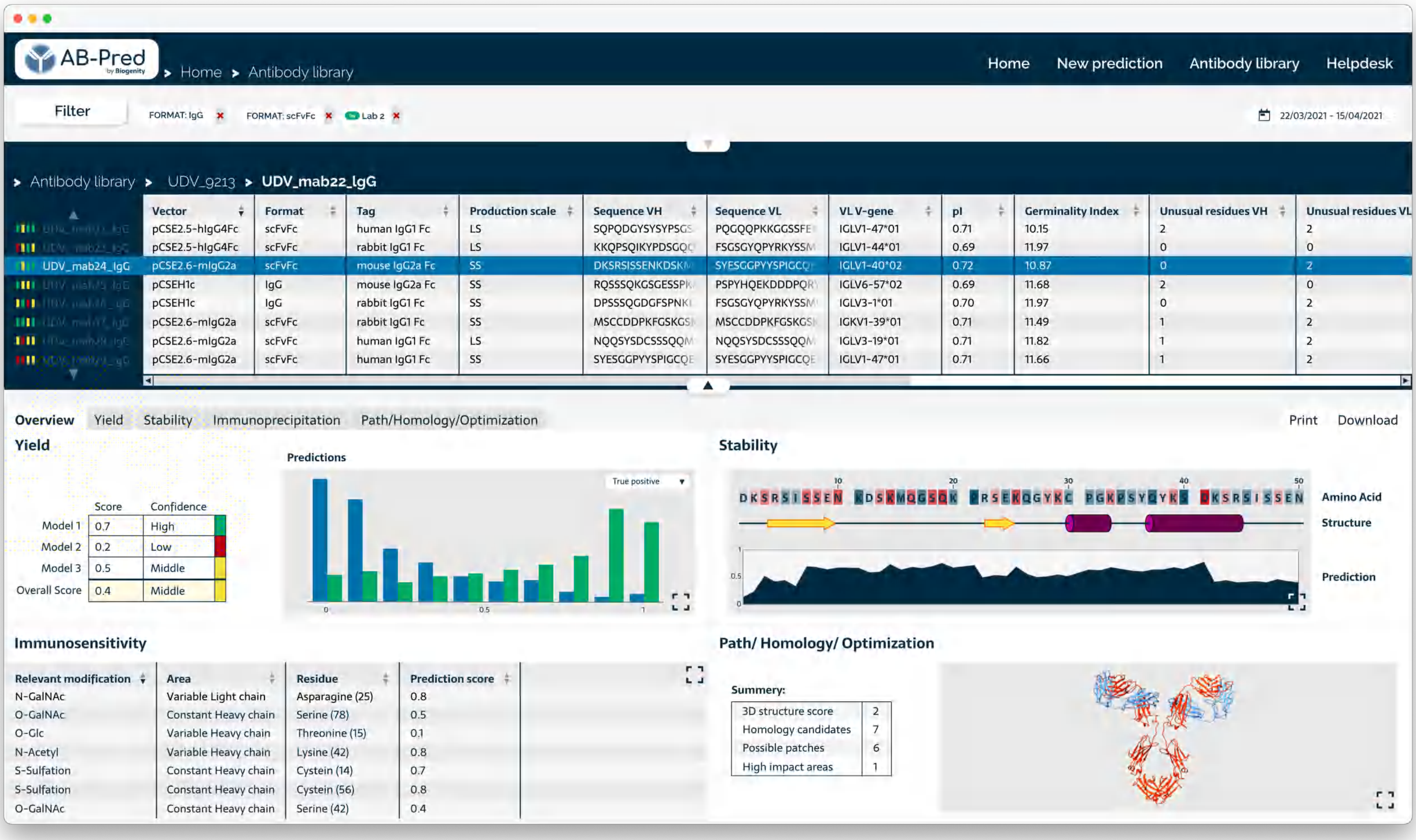
E-mail: sven.lanens@aalto.fi

Biotech & Pharma

AB-Pred by Biogenity

AB-Pred enables the antibody candidate selection to be guided by Artificial Intelligence

The future of antibody production screening



Technology Description

When biotech companies develop a new drug, they can generate the needed antibodies with recombinant methods. A method where they are left with up to 1.000 antibody candidates after the first screening. Next is chemical testing, which is very expensive, why they need to select, e.g., 50 candidates. This results in only a limited amount of antibodies are selected, significantly lowering the chance of finding best lead, primarily because the selection is based on a qualified gut feeling derived from limited knowledge about the individual candidates.

AB-Pred enables the antibody candidate selection to be guided by Artificial Intelligence, allowing the biotech companies to increase quality significantly. Instead of randomly selecting the 50 candidates, giving the risk of losing the best candidates in the selection process, AB-Pred will examine all 1.000 candidates and select the top 50.

Next, AB-Pred can be utilized to optimize one or more antibody candidates during chemical testing. AB-Pred allows for a database search of previously successful antibodies with sufficient similarity to our selected lead. As a result, AB-Pred can optimize the lead by suggesting which antibody elements to replace from another antibody (from the database search), significantly strengthening the antibody lead for an upscale production.

Team

Co-founder & CEO
PhD
Kenneth Kastaniegaard

Co-founder & CCO
Msc
Louis Loeb

AI development
PhD fellow
Biomedical Engineer
Alessandro Ranieri

Project manager
PhD
Odete Gonçalves

Funding

InnoFounder Innovation Fund Denmark
InnoBooster Innovation Fund Denmark
EXIMIOUS Mapping Exposure-Induced Immune Effects
Funded by the European Union

What is the status of the development?

AB-Pred is currently ready with its first module assisting antibody development utilizing Phage Display (recombinant method). It predicts antibodies with low producibility in Escherichia coli; thus, bad producers can be excluded or production up-scales to ensure the concentration necessary for the next screening. The module is currently being tested in a case study.

Learn more:

In the search for investment

Biogenity is currently looking for investors for our first seed round to advance the development with AB-Pred. If you are interested in learning more about our case, we would love to send our seed deck and pitch our business case.

Feel free to contact us directly at invest@biogenity.com.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

BREAKING NEW GROUND
AALBORG UNIVERSITY

Contact information
Kenneth Kastaniegaard
CEO
71110509
Kkas@biogenity.com

WORKING TOWARDS A PAIN-FREE FUTURE

REDO NEUROSYSTEMS

Medtech & Diagnostics

1 mil

In Denmark, there are more than one million patients suffering from chronic pain in muscles and joints.

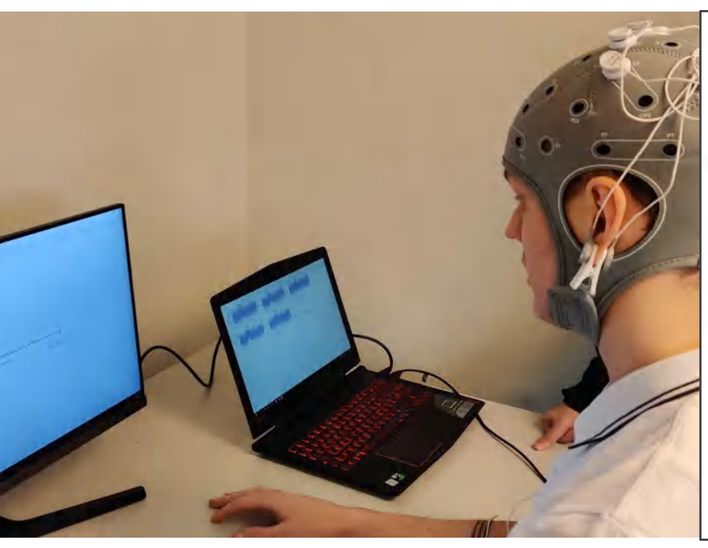
40%

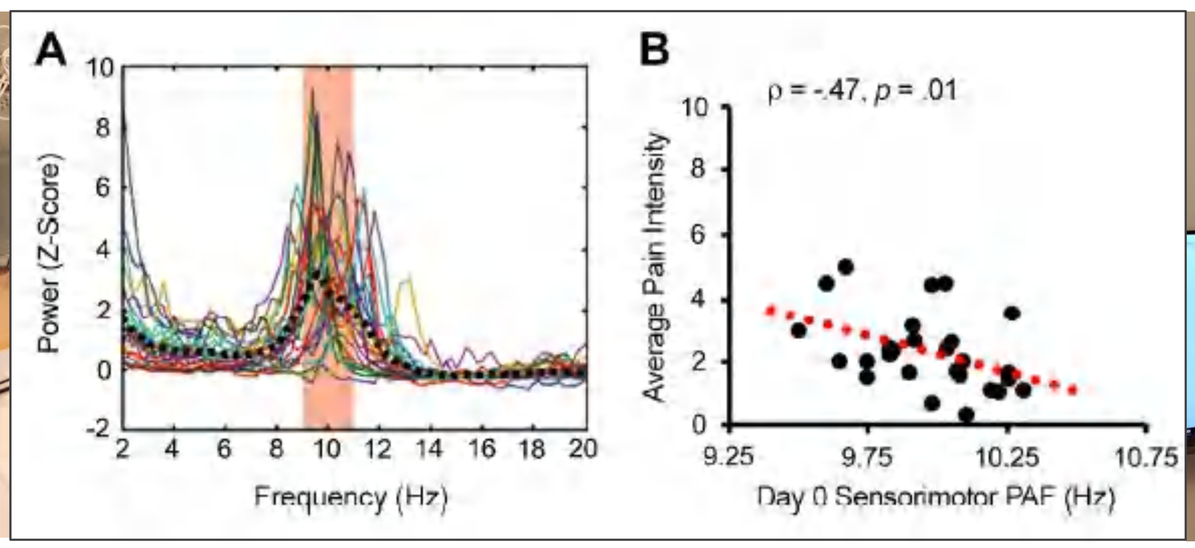
Chronic pain is widely reported throughout the world, and up to 40% of the entire global population will develop it during their lifetime.

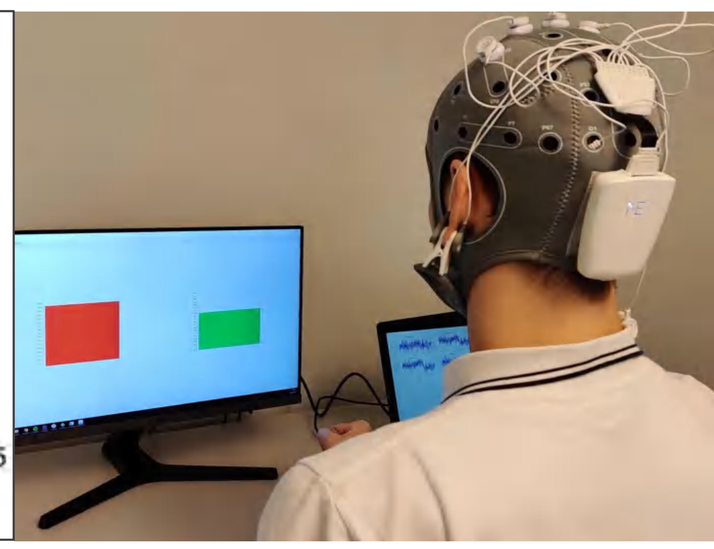
98%

98% of patients suffering from chronic pain in muscles and joints, do not receive specialized treatment.

Chronic pain entails an oversensitive pain response in the brain - meaning their brain tells them to feel pain, when they shouldn't.







Pain alleviation

Drug and surgery free

Quality of life

Technology Description

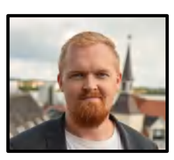
To combat chronic pain in muscles and joints, we are developing RELEARN, a software that in combination with non-invasive brain- and muscle electrodes, analyses and visualizes patients' pain-response on a monitor. This information allows the patient to train how to reduce their pain response over 8 training sessions. RELEARN enables a truly personalized treatment for each patient, that is 100% based on mental rehabilitation of their own brain.

RELEARN is based on 8 years of research from Aalborg University.

Intellectual Property Rights

We have an exclusive license agreement with Aalborg University that gives us the right to commercialize it.

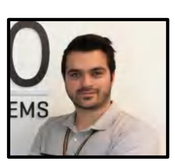
Team



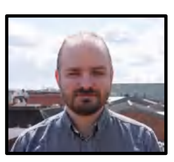
CEO & Co-Founder
Tor Emanuelsen

CSO & Co-Founder
Morten Kirkegaard

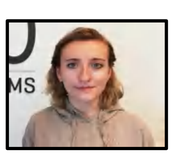
COO & Co-Founder
Mathis Sørensen



Medical Software Specialist
Ali Asghar Zarei



CTO
Rasmus Lund



Student Worker
Aleksandra Zasadni

Current State

We are about to initiate our last clinical trials and expect to finish them by the end of this year. Our software is at a research state, but we are working on the commercial version and simultaneously making documenting adherence to the medical CE-regulative. We expect to launch our first pilot projects later this year, to make sure our product is validated and tests in practice.

Business opportunity and Call to action

Our product will be sold through a pay per use/leasing model, ensuring recurring payment.
We closed an investment earlier this year, dedicated to finishing our clinical trials and developing a commercial product. Next year are we looking to raise a new investments, from experienced investors within the Medtech industry to scale our business internationally.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

BREAKING NEW GROUND
AALBORG UNIVERSITY

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COO & Co-Founder
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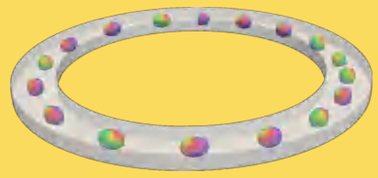
mrs@redoneurosystems.com

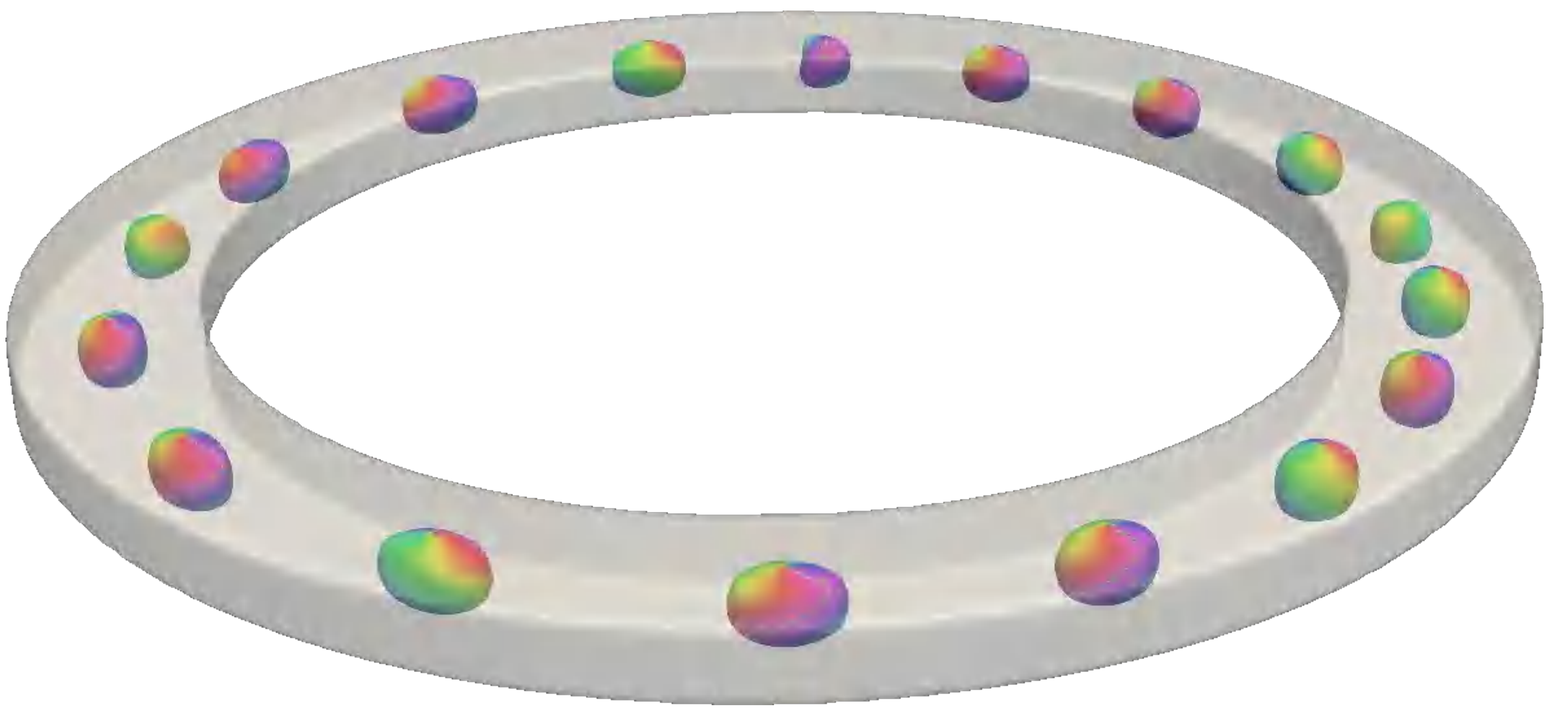
SKYAXXEL

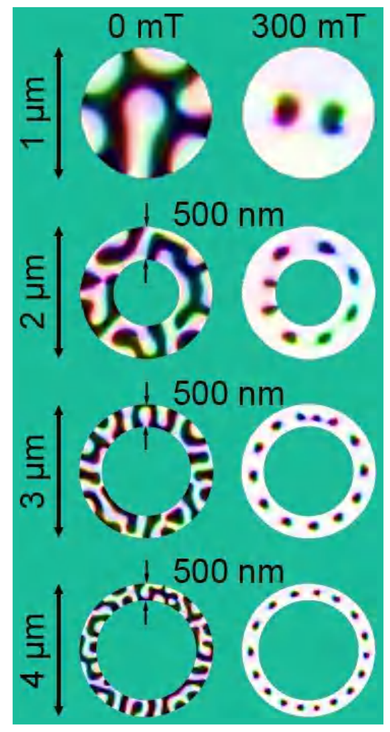


Advanced Production & Technologies

A novel concept for controlling the information carriers of the future

Magnetic skyrmions hold great promise as information carriers for high-density, low-power memory devices. In our circular racetrack memory, we utilize the helicity of skyrmions to represent binary states.





By introducing a new concept for controlling the skyrmion motion and using the right materials, we can reduce both the complexity and the power consumption of the racetrack architecture.

Technology Description

Originating from the Department of Materials Science and Engineering at NTNU in cooperation with NTNU's Center for Quantum Spintronics and the University of Augsburg, Germany, we present a novel circular racetrack memory design, using an accelerator section to control magnetic skyrmions, which act as binary information carriers.

With no obvious failure mechanism and expected operation at reduced drive voltages, the design signifies an important step ahead towards the next-generation of spintronics-based low energy solid state memory devices.

By applying the driving current directly to the racetrack, the design removes the need for more complex heterostructures. Furthermore, as currents are only injected into a small section of the circular racetrack - the accelerator - unwanted resistance heating is suppressed and the energy consumption during operation is reduced.

Intellectual Property Rights

Patent pending.

Team

Inventor
Dr. Erik N. Lysne

Inventor
Prof. Dr. Dennis G. Meier

Inventor
Erik D. Roede

Inventor
Markus Altthaler

Inventor
Prof. Dr. István Kézsmárki

Current State

Accelerator concept demonstrated in micromagnetic simulations and nano-structuring of first circular test tracks was successful in lab trials.

Business opportunity and Call to action

Patent pending. Seeking industrial partners for further research.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

NTNU
Norwegian University of Science and Technology

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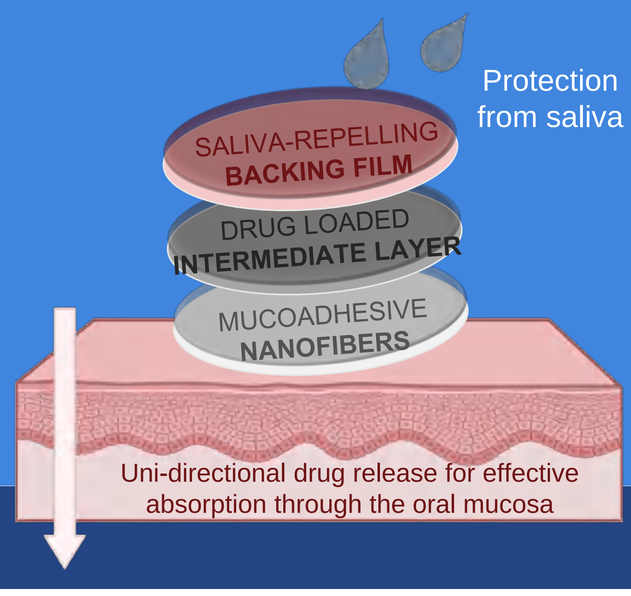
SAFE Patch™

Rethinking drug delivery



Biotech & Pharma

Self-Adhesive Flexible Effective

Biocompatible excipients ..... Ready for clinical translation

Simple/mild production conditions ..... Ready for industrial scale-up

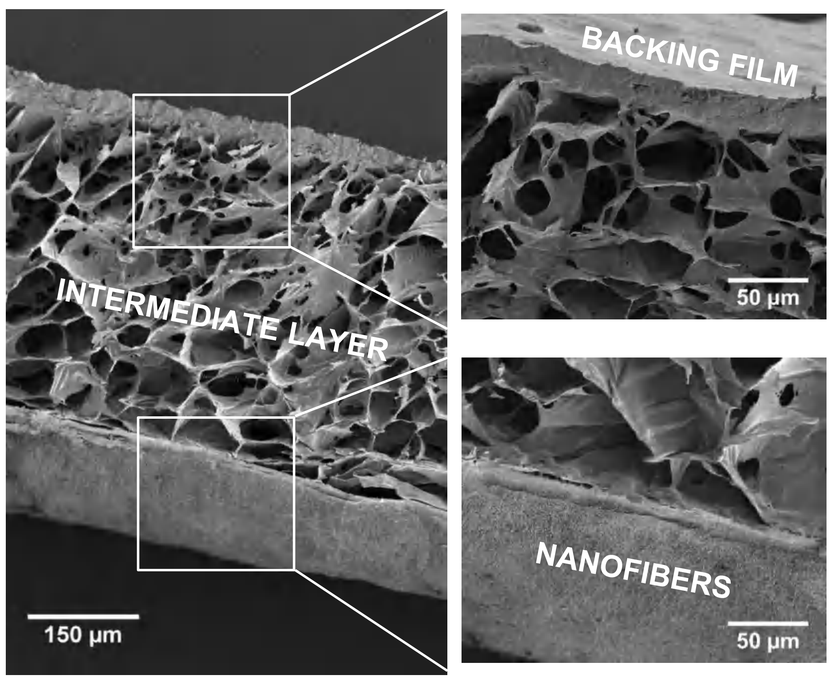
Tuned drug release ..... For versatility

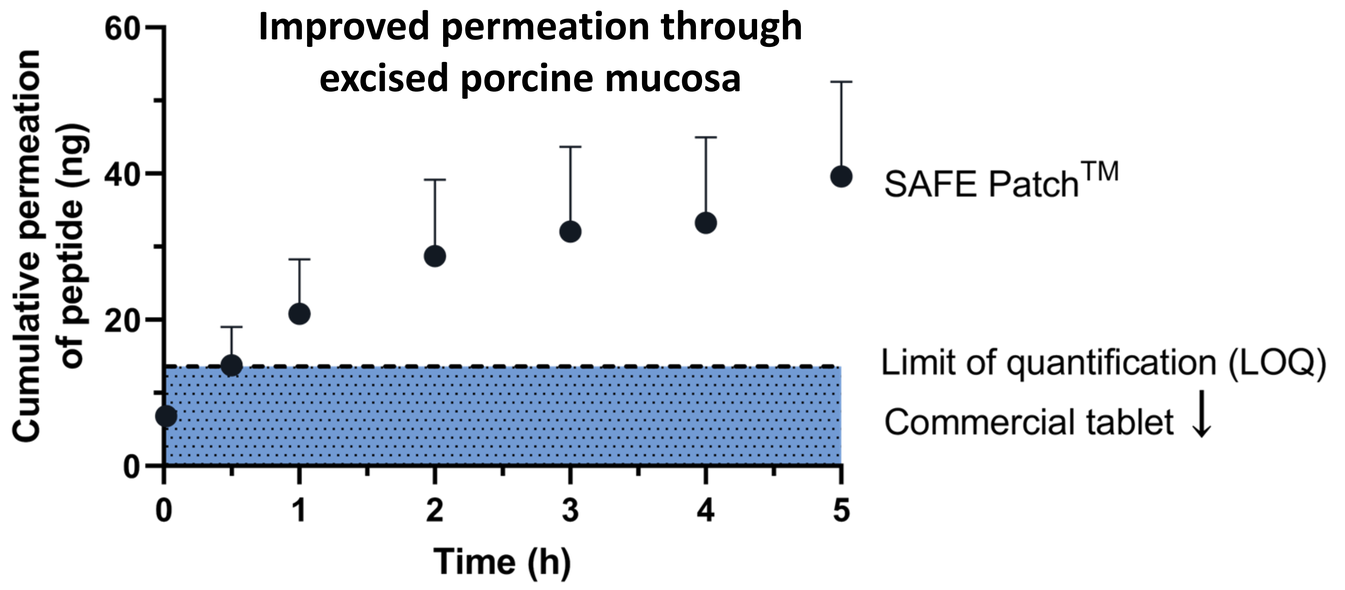
Flexible yet mechanically strong ..... For comfort and easy handling

Strong adherence ..... For enhanced drug absorption

Unidirectional drug release ..... . For effective drug absorption

No liquid or swallowing required ..... For easy administration





Technology Description

SAFE Patch™ is a self-adhesive, flexible and effective patch technology that consists of three layers: i) mucoadhesive electrospun nanofibers, ii) porous intermediate layer for high drug loading and iii) a saliva-repelling backing film. SAFE Patch™ benefits from the convenience, ease of use, and acceptance of the oral route, but in contrast to traditional tablets and capsules, access to water and swallowing of the dosage form is not required.

Existing oromucosal dosage forms such as films and fast-disintegrating tablets suffer from one or more drawbacks such as low drug loading, short retention time at the oral mucosa and extensive washout of drug by saliva, which leads to swallowing of the drug and exposure of the drug to the low pH of the stomach and a greater degree of hepatic metabolism. SAFE Patch™ is designed to overcome these drawbacks. Due to the combination of strong mucoadhesive properties and unidirectional drug release towards the mucosa, loss of drug is minimized and drug absorption is enhanced by the maintenance of a high concentration gradient of drug at the mucosal surface.

Intellectual Property Rights

Priority EP application filed in April 2021.

Team

Postdoc, UCPH
Mai Bay Stie
Interim CEO

Associate Professor, UCPH
Natalja Genina
Innovator

Professor, UCPH
Hanne Mørck Nielsen
Advisory board

Current State

- The SAFE Patch™ fabrication method and excipients are ready for industrial scale up.
- We have demonstrated excellent mucoadhesive properties and prolonged retention time of SAFE Patch™ at the site of application.
- Efficient drug loading and tuned drug release from SAFE Patch™ were achieved .
- We have demonstrated enhanced drug permeation from the SAFE Patch™ into excised porcine mucosal tissue (cheek) compared to a commercial freeze-dried tablet for oromucosal delivery.

Business opportunity and Call to action

We are looking for

- Mentorship and networking
- Investments
- Research collaborations
- Co-development of the technology

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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Senior Commercial Officer
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AmyloiDia Sweden

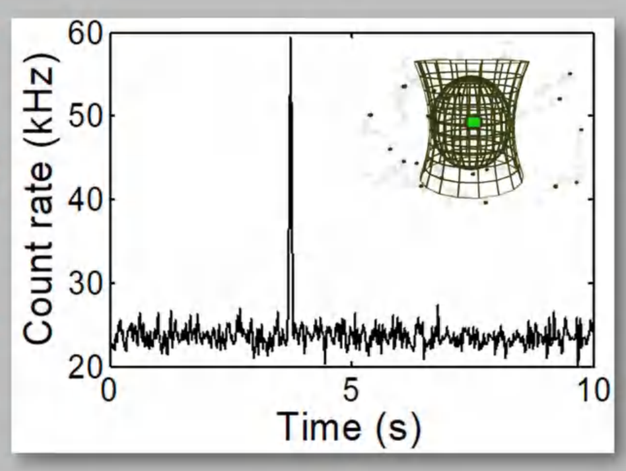
Medtech & Diagnostics

Reliable, fast and affordable blood-based tests for early diagnosis of amyloid diseases

NEED

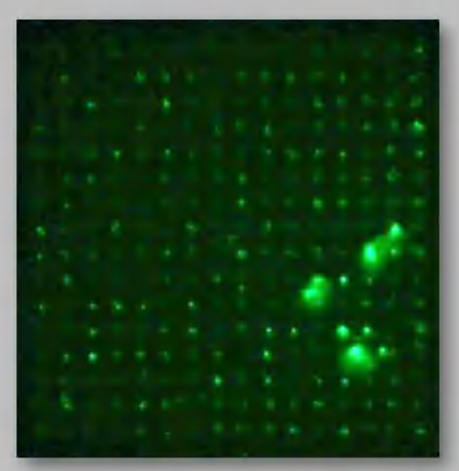
- ✓ Amyloid diseases are a group of about 40 diseases
- ✓ Alzheimer's disease (AD) is an amyloid disease
- ✓ Worldwide, 30 million people have AD
- ✓ 6 million new AD cases every year
- ✓ Screening and diagnostic tests for early AD detection are not available
- ✓ Monitoring treatment responses and disease progression is not efficient

SOLUTION

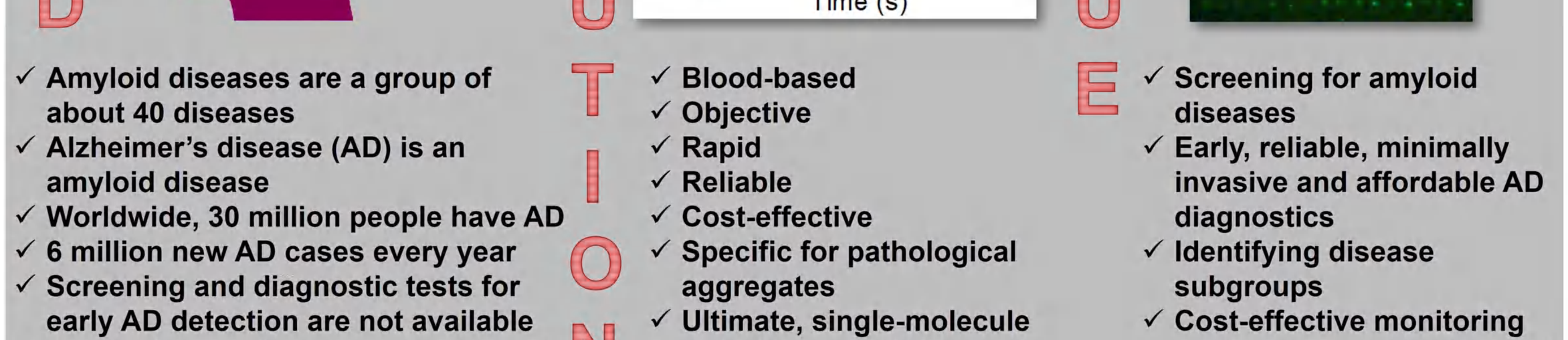


- ✓ Blood-based
- ✓ Objective
- ✓ Rapid
- ✓ Reliable
- ✓ Cost-effective
- ✓ Specific for pathological aggregates
- ✓ Ultimate, single-molecule detection sensitivity
- ✓ Environmentally friendly

VALUE



- ✓ Screening for amyloid diseases
- ✓ Early, reliable, minimally invasive and affordable AD diagnostics
- ✓ Identifying disease subgroups
- ✓ Cost-effective monitoring of disease progression and treatment efficacy



Technology Description

Worldwide, around 30 million people have Alzheimer's disease (AD), and there are 6 -7 million new cases every year. At present, there are no effective, reliable and affordable methods for an early AD diagnosis and AD is identified at a stage when the disease has progressed to such an extent that considerable and irreversible degenerative changes have already occurred in the brain. FDA approval of the first drug for the treatment of AD, Aduhelm (Aducanumab, Biogen), further increases the importance of reliable early diagnosis of AD and the possibility to monitor disease progression and treatment efficacy.
We have invented a blood-based, non-immune method that can detect pathological structured protein aggregates (amyloids) with the ultimate single-molecule sensitivity and measure their concentration and size.

Intellectual Property Rights

International Preliminary Report on Patentability (IPRP) has been issued for our International Patent Application No. PCT/EP2019/058206. Novelty, inventive step and industrial applicability are acknowledged for all claims. We have entered the national phase and filed for obtaining a grant of patents in EU, USA, China and Japan.

Team

Rudolf Rigler
CEO

Astrid Gräslund
Deputy CEO

Vladana Vukojević
Steering Board Chair

Lars Terenius

Ann Tiiman

Jüri Jarvet

Sebastian Wärmländer

Johann Rigler

Current State

We have: (1) validated the method and published the results in peer-reviewed scientific journals; (2) developed a prototype research instrument; (3) attained an early adopter to whom we provide service-for-fee; (4) received initial equity investments; (5) acquired funding for Innovative Startups from Vinnova.
We are currently working on building the first compact, desk-top size instrument prototype for commercial applications.

Business opportunity and Call to action

We seek to raise funding, 20 MSek over two years, and look forward to teaming up with prospective investors who will together with us reach our vision to remove Alzheimer's disease from the list of incurable diseases by bringing ultrasensitive methods with single-molecule sensitivity to the healthcare.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AMYLOIDIA
ULTIMATE DIAGNOSTICS

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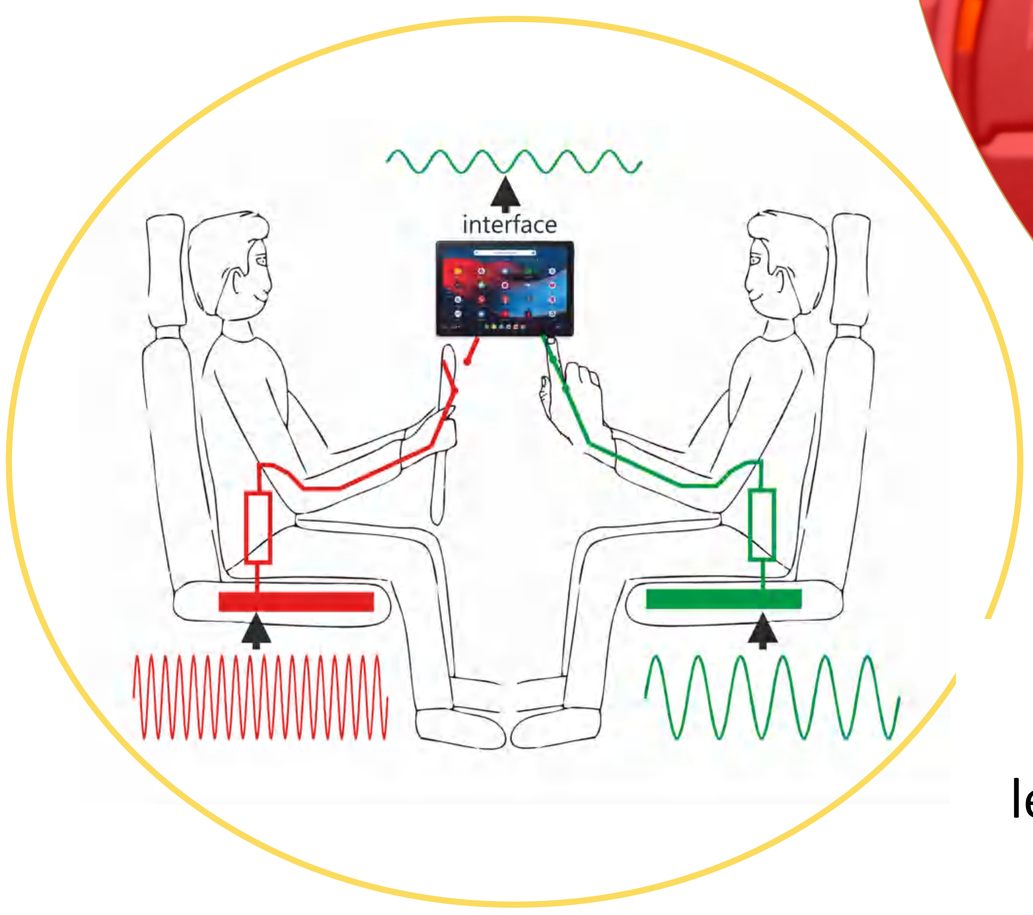
UserPos

Advanced Production & Technologies

Low cost safety measures for the automotive industry

SAFETY FIRST

A low cost and easy to implement technology that limits access to a vehicles instruments while in motion



Using impedance measurement the technology makes it possible to provide driver and passengers with different levels of access to the vehicles interface such as dash board or touch interface. This limits distractions for the driver

Technology Description

The invention enables the determination of where the current user of an interface is located by means of a simple electronic setup. In the automotive scenario, the invention will allow to distinguish whether the driver or the passenger is using a specific button or touchscreen

The user localization is achieved by the usage of several “location electrodes” placed on spots where the user could be potentially located and the impedance measurement between such location electrodes and the interface. Location electrodes can be realized by metal plates or foils and can be covered by further nonconductive (but dielectric) material (e.g. textiles of seat covers)

Intellectual Property Rights

Patent application No, 75236EP01 has been submitted to ensure priority

Team

Prof. Dr.-Ing
Daniel Teichmann
SDU Health Informatics and Technology
University of Southern Denmark

Business developer / TTO
Jørgen Jakob Friis
SDU RIO
University of Southern Denmark

Current State

The current state of the technology is TRL 3 as the concept has been tested experimentally in a controlled environment. However, the concept which it is based on is tried and tested so it will be simple to develop a functional prototype

Next step is to build a conceptual prototype. Preferably in collaboration with a relevant industry partner. Should a company be ready to license the technology at its current state then this can also be accommodated

Business opportunity and Call to action

We are looking for companies, interested in licensing our invention: “A system for user position detection”

Preferably companies that already work in the design and implementation of cockpits for vehicles where user identification is a key functionality

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

SDU

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INNOVATIVE TOOLS FOR GASTROINTESTINAL SURGERY

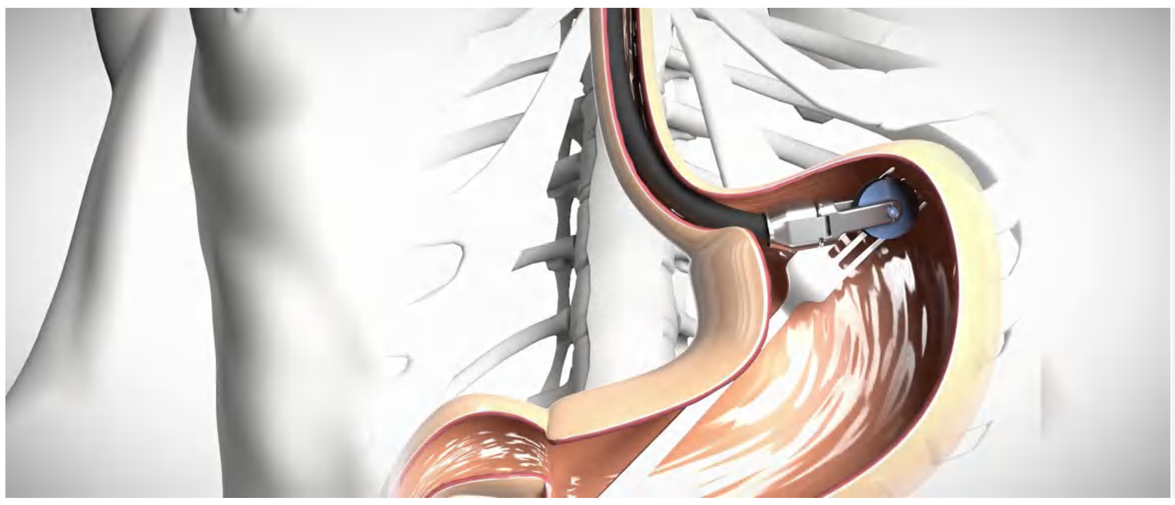
Medtech & Diagnostics

Enabling better patient care and more efficient health services through new treatment options and surgical procedures

Koppler

- a new circular stapler

- › Novel foldable anvil design that eases insertion and retraction
- › Reduces stress on the staple line, and hence might reduce the risk of post-operative leakage
- › Can be integrated with existing circular staplers



Khoral

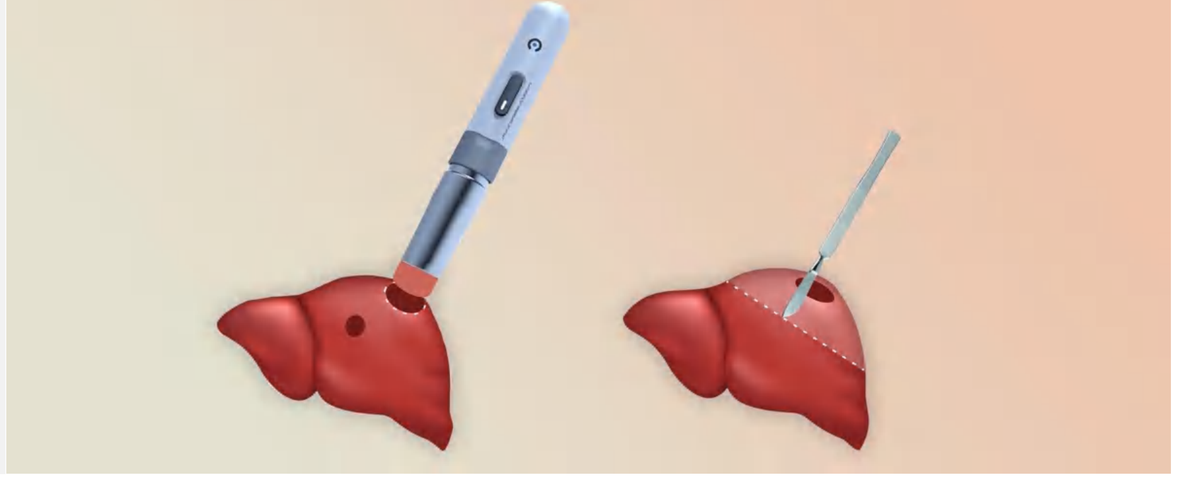
- an extraction tool for large foreign objects

- › Facilitates fast and simple extraction of ingested large and sharp objects in humans and animals
- › Causes less stress and reduces the need for operating rooms
- › Can be attached to existing gastroscopes from any vendor

Cicada

- a surgical knife for liver resection

- › Cylindrical shaped knife for the removal of liver metastases while simultaneously handling coagulation and cauterization of tissue
- › Reduces the loss of healthy tissue and shortens surgery time
- › More patients eligible for surgery



Technology Description

Koppler is a novel design for a circular surgical stapler with a foldable anvil. Compared to existing staplers, this device causes less stress on the anastomosis and thereby reduces the risk of leakage after stapling.
Cicada is a cylinder shaped ultrasonic surgical knife for surgical removal of liver metastases. In comparison to current techniques, the tool enables tissue sparing surgery by allowing to resect only specific areas of the liver while simultaneously sealing adjacent blood vessels.
Khoral is a tool facilitating fast and simple extraction of large foreign objects from the esophagus and stomach. The device can be attached to all types of flexible gastroscopes. It will cause less stress for the patients and reduce the need for operating theatres.

Intellectual Property Rights

Koppler: Patent filed, priority data 29.6.2016
(GB1611306.0 Surgical stapler, anvil for a surgical stapler, and a method of stapling tissue)
Cicada: Patent filed, priority date 22.01.2020
(GB202000938D0 Surgical cutting tool)
Khoral: Patent filed, priority date 16.06.2017
(GB1709595.1 Surgical retractor tool)

Team

Brynjulf Ystgaard
Inventor/Consultant Surgeon
St. Olavs University Hospital

Lars Cato Rekstad
Inventor/Consultant Surgeon
St. Olavs University Hospital

Erlend Langsrud
Department Manager,
FemLab, Inventas

Hilde Kjeldstad Berg
Project Manager
NTNU Technology Transfer

Knut Jørgen Egelie
Head of IPR
NTNU Technology Transfer

Arved Anhalt
Innovation Manager
NTNU Technology Transfer

Current State

Prototypes for all three tools have been developed and successfully tested in a preclinical setting. (TRL 6)

Business Opportunity and Call to Action

Looking for commercial partners/licensees to

- › further develop the prototypes
- › take the tools to the market

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

NTNU
Technology Transfer as

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NTNU Technology Transfer
https://www.ntnutto.no/

Novel antimicrobials

- to combat antibiotic resistant Gram-positive bacteria

Biotech & Pharma

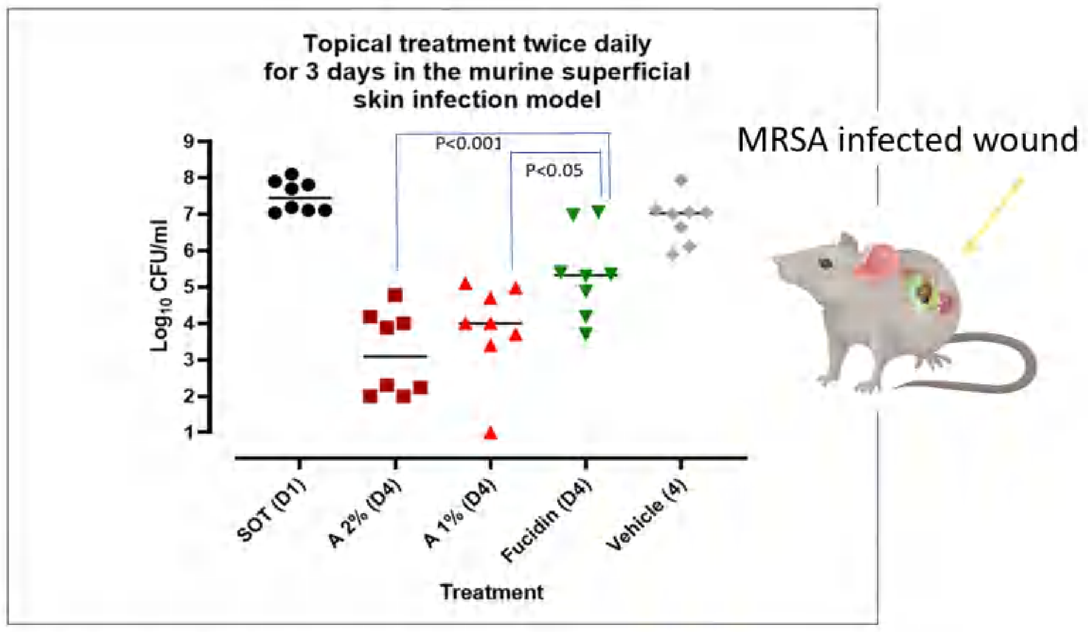
Challenges:
Emergence of resistance against currently used antimicrobials to **treat** bacterial skin infections and **eradicate** MRSA from carriers

Skin-infections with (multi-resistant) *Staphylococcus aureus*

+

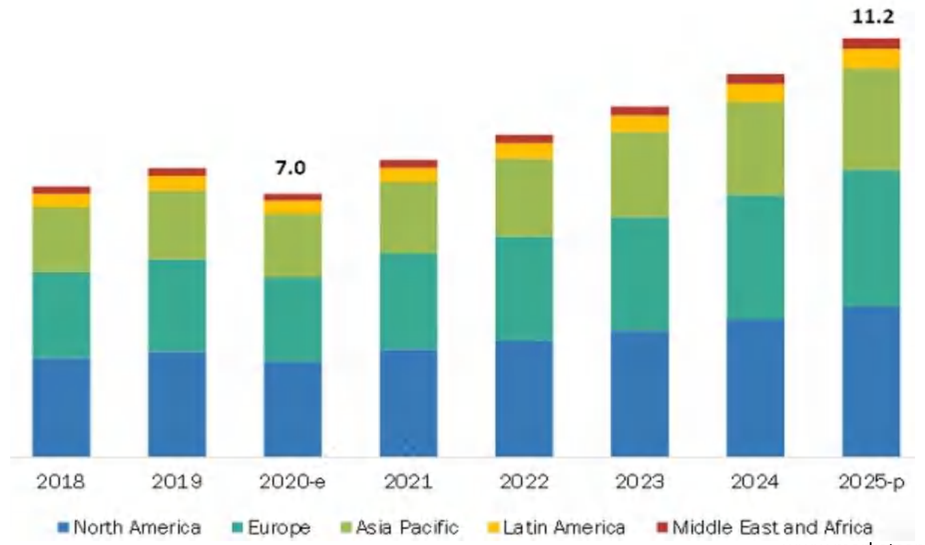
Healthy carriers of Methicillin Resistant *S. aureus* (MRSA)

Solution: A novel antimicrobial (JBC 1847) with low rates of resistance development



SOT (D1): Start of treatment, Day 1
A 2% (D4): Bacterial load after Day 4 (D4) after three days treatment with a 2% JBC 1847 hydrogel
A 1% (D4): Bacterial load after Day 4 (D4) after three days treatment with a 1% JBC 1847 hydrogel
Fucidin (D4): Bacterial load after Day 4 (D4) after three days treatment Fucidin® (LEO Pharma)

Wound care (dressing) market, by region (USD billion)



www.marketsandmarkets.com

JBC 1847 as Business case – Selling points

- **Superior** to Fucidin® in reducing *S. aureus* bacterial load
- Due to the **low resistance rate**, the expected antibiotic markets for JBC 1847 includes both wound treatment (patients) and eradication of *S. aureus* (healthy carries)
- Estimated price 1500 USD/kg

Technology Description

The inventors have a collection of **51 novel compounds** synthesized at University of Copenhagen, all with antimicrobial activity. Compound JBC1847 is currently our lead candidate, yet we have eight "close-to-lead" compound.
In vivo data in mice MRSA skin infection model have shown JBC 1847 to be highly superior to Fucidin® (LEO Pharma) in **reducing the load of MRSA in wounds**, while in vitro data has shown a resistance development rate more than 50-times lower than fusidic acid.
In addition to *S. aureus*, the novel compounds also shows high activity against other skin pathogens, e.g. *Cutibacterium acnes*, the causative agents of severe acne.
JBC 1847 has also been proven as an highly efficient **inhibitor of bacterial biofilm** and bactericidal activity against bacteria (*S. epidermidis, S. aureus, C. acnes*) **embedded in preformed biofilm**.

Intellectual Property Rights

PCT application filed April 2020

Team

Associate Prof.
Rikke H. Olsen
Scientific officer

Aassociate Prof.
Jørn B. Christensen
Technology officer

PhD student
Søren W. Svenningsen
Research and development

Current State

In vitro: High in vivo activity documented against 11 different bacterial species, including strains highly resistant to conventional antibiotics
In vivo: High efficacy in skin models
Next step : Regulatory toxicological studies (in vivo) to further document safety of JBC 1847 (photosensitising and allergic response)

Business opportunity and Call to action

- Establish University **SPIN-OUT** company – Open position for experienced biotech CEO
- Industrial partner to complete all mandatory pre-clinical assessments to allow the invention to enter Clinical Phase 1
- Business developer

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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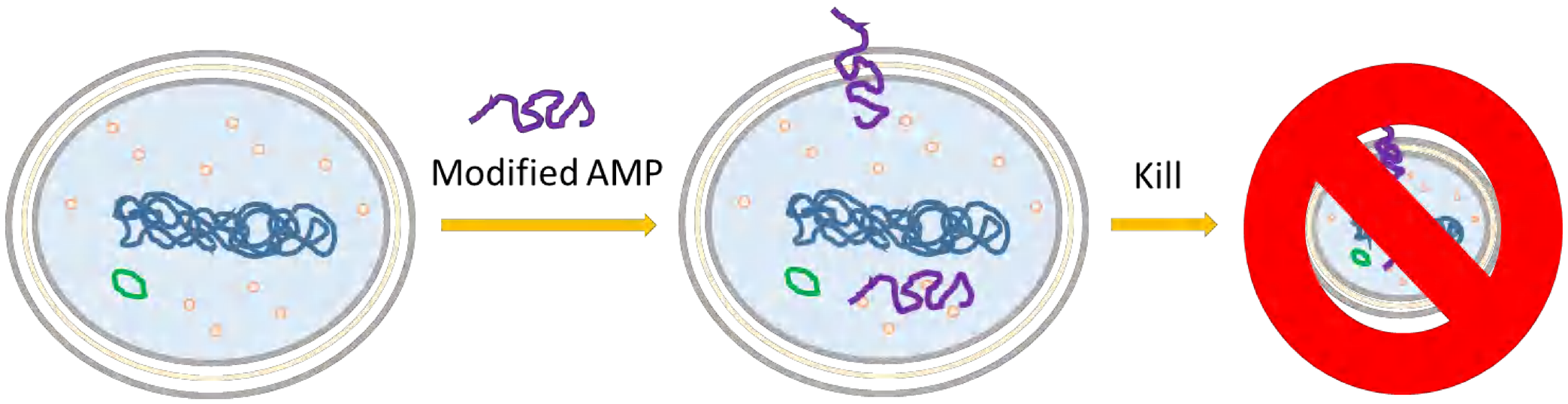
Enhanced antimicrobial peptides

Biotech & Pharma

– Low risk of resistance, high potency, low toxicity



Resistant Gram-negative bacteria

Efficient uptake and kill

- Potent activity:
  - Gram-negative pathogens
  - Multidrug-resistant strains
- Activity in vivo
- Low frequency of resistance
- Low toxicity
- Scalable synthesis

Antibacterial potency

	Minimum inhibitory concentration (MIC; µg/mL)					
Compound #	Parent/ref.	355	632	300	607	709
E. coli *ATCC 25922*	**2–4**	**0.5–2**	**4**	**4**	**1**	**0.25**
E. coli *3898/15**	**n.d.**	**1**	**4**	**n.d.**	**2**	**0.5**
K. pneumonia *ATCC 13883*	**2–4**	**0.25**	**0.5**	**0.5**	**2–4**	**2**
P. aeruginosa *PAO1*	**>64**	**8**	**8**	**32**	**2–4**	**0.5**
A. baumannii *ATCC 19606*	**16–32**	**8**	**8**	**8**	**4–8**	**2**

* Colistin-resistant

Toxicological profile

Comp. #	Parent/ref.	355	632	300	607	709
Hemolysis (% at 800 µg/mL)	**6.5**	**6.0**	**2.5**	**2.2**	**4.5**	**n.d.**
Hep G2 (IC_{50}, µg/mL)	**>>1280**	**>>1280**	**>1280**	**n.d.**	**656**	**998**

Technology Description

Currently , most studied AMPs interact with the bacterial cell membrane, but also with human cell membranes, resulting in toxicity.

We have designed transport-enhancing constructs that allow AMPs with intracellular targets to efficiently cross the bacterial envelope. The result is high potency and very low hemolytic activity.

Importantly, our lead compounds exhibit very low frequency of resistance in key Gram-negative pathogens.

Intellectual Property Rights

European (priority) patent application filed on 16 Sep 2020

Team

Assoc. Prof.
Henrik Franzyk
Univ. of Copenhagen

Professor
Fredrik Björkling
Univ. of Copenhagen

Professor
Peter E Nielsen
Univ. of Copenhagen

Current State

This drug discovery project has reached the stage of proof of concept *in vivo* (TRL-3). Early data on compound properties, antimicrobial activity and early toxicological assessment are available for lead compounds. Further determination of antimicrobial profile, safety and structure activity optimization is ongoing.

Business opportunity and Call to action

The compounds and technology covered in our recent patent application are open for licensing to a partner with capabilities and interest in development of novel antimicrobial drugs.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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SUNDEW

Treating Aquatic Pests & Diseases

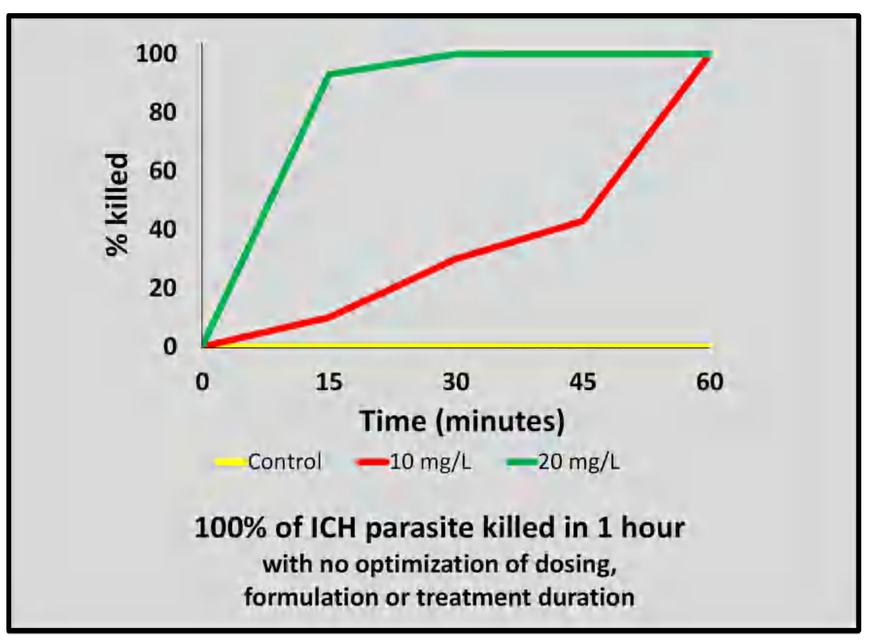
Biotech & Pharma

Water-borne disease is a huge burden to society and economy, affecting aquaculture and agriculture as well as human health. Sundew intends to sell biological products with activity against such diseases.

Our first product, **Biokos**, kills commercially important fish parasites ("Ich") better than any currently available remedy. It appears non-toxic to fish, bio-degrades quickly, is relatively easy to manufacture, and Sundew has a worldwide all fields license to the underlying IP.

"Ich" is a significant part of the ca. $10bn large disease problem in global aquaculture, but we also expect BIOKOS to work on additional parasites. There is also a good chance it will work on certain human diseases (e.g. bilharzia), certain agricultural diseases and environmental issues (e.g. red tides).

Fish heavily infected by Ich.



From Al-Jubury et al., 2018. J. Fish Disease 41: 1147-1152.
Impact of *Pseudomonas* H6 surfactant on all external life cycle stages of the fish parasitic ciliate *Ichthyophthirius multifiliis.*

Sundew's 2 x 5,000 litres fermenters at Alfa Laval's Innovation House, Søborg

Technology Description

Water-borne pests and diseases disrupt aquaculture, ornamental fish, human health, agriculture and ecological balance. Aquaculture alone suffers c. $10B in annual losses from disease. Existing remedies are typically hazardous, toxic, expensive or difficult to use. We use bio-solutions to control water-borne disease, and our first product – BIOKOS – uses a *Pseudomonas* lipopeptide to kill the ICH (*Ichthyophthirius multifilis*, "white-spot") parasite. It is non-GM and compatible with organic labels. Early data shows that it works on other fish parasites. It appears harmless to fish and is quickly degraded in the environment. It is amenable to manufacture using low-cost fermentation and DSP.

Intellectual Property Rights

PCT/EP2018/081923 – De Bruijn, Raiimakers, Buchmann – TREATMENT OF PARASITIC INFECTIONS OF FISH SURFACES – Nederlands Instituut voor Ecologie (Nioo-knaw) & University of Copenhagen.

SUNDEW has obtained an exclusive licence for any use for this IP.

Team

CEO
Giovanni Salerno

CTO
Jørgen Hansen

Chair of Board
Neil Goldsmith

CFO
Andy Gardiner

Jørn Hansen
Production

Foojan Mehrdana
Applications

Mohamed Ibrahim
Production

Boqian Wu
Production

Malte Jarlgaard Hansen
Applications

Collaborators & Advisors:

- Prof. Kurt Buchmann, PhD, DVSc. UCPH
- Ass. Prof. Claus Sternberg, PhD. DTU
- Niels Henriksen, Chief Vet. Dansk Akvakultur

Current State

BIOKOS has been shown to work efficiently on an extraordinary high number of Ich parasite life stages, appears to be safe for fish and environmentally biodegradable. Gram scale production has been accomplished and further toxicity and environmental studies are underway as are testing on further, distinct fish parasites. Producing organism has been sequenced and responsible genetic circuits identified. We plan to produce at 100 kg levels and to have first sales commitments on Ornamental's market within 6 months. Current TRL level 5/6 expected to increase to 7/8 within same time frame.

Business opportunity and Call to action

With funding from StartLife, GUDP (Grønt Udviklings- og Demonstrations-project), the BioInnovation Institute & Vækstfonden Sundew is now able to perform the necessary environmental & toxicity-studies as well as manufacturing process development. The company is currently looking for possible commercialisation partners (both within ornamentals and food aquaculture) as well as investors who understand the relevant industries and markets. **Biokos** is Sundew's first product but we expect to soon add several other product candidates to our portfolio.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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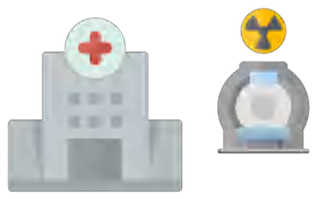
Gallex

Low-cost, sustainable medical radionuclides for molecular imaging

Advanced Production & Technologies

Radiogallium (^{68}Ga)

is used daily in clinics world-wide for positron emission tomography diagnostics



Region of Southern Denmark · OUH Odense University Hospital · Rigshospitalet · Aarhus University · Herlev og Gentofte Hospital · midt regionmidtjylland

^{68}Ga market

belongs to 2 vendors who sell ^{68}Ge generators

^{68}Ge makes ^{68}Ga, supply relies on:

^{68}Ge — US Department of Energy, Russia

- *^{68}Ge is the generator's working media*
- *^{68}Ge is radioactive and radiotoxic*
- *^{68}Ge is expansive, very limited supply*

REElit · Eckert & Ziegler

Gallex: key values

1. *frees hospitals from dependency on external suppliers of ^{68}Ge generators*
2. *stabilizes ^{68}Ga supply chain*
3. *saves money*
4. *scales from 1 to 16 patient/day*
5. *^{68}Ga available on demand*
6. *next generation FDA QbD quality control*

With Gallex, hospitals will switch from buying generators to making radiogallium in-house, at a fraction of cost, and recycle the production

Potential installation sites

1484 sites

UNIT COST: € 200 000

- **Makes as much ^{68}Ga as hospital needs and when it needs it**
  - Scalable ^{68}Ga production, limited only by scanner time
  - ^{68}Ga available on demand

- **Use in-house facilities and infrastructure**
  - Use hospitals'own cyclotrons and hot cells
  - ^{68}Ga at the cost of running cyclotron

Business Model:

sell HARDWARE UNITS

sell GMP CONSUMABLES

RETURN ON INVESTMENT

Pre-commercial procurement contracts signed:
- DNV-Gødstrup: 2022
- Aalborg University Hospital 2023

BUYOUT
- IBA
- GE Healthcare

Technology Description

Based on DTU-MIT patented fluidics-based technology, Gallex uses medical cyclotrons to produce and purify medical-grade radiogallium. Gallex's closed-loop circuit allows the production to be safe, re-usable, and adhere to FDA's Quality-by-Design quality control framework.

The on-demand Gallex production scales from 1 to 16 patients per day and maximizes the hospital's PET scanner occupancy.

Intellectual Property Rights

Pedersen, K. S., Zhuravlev, F*, "Separation of Radiometals", PCT/EP2019/071156, Filed on August 6, 2019.
Patent application is currently in the national phase

DTU own 50 % and MIT own another 50%.

Team

Dr. Fedor Zhuravlev, PhD
DTU
Co-founder
Technical Expertise

Dr. Andrea Adamo, PhD
CEO Zaiput, USA
Co-founder
Technical Expertise

Dr. Lise Falborg, PhD
Chief radiochemist at Herning Hospital, Advisory Board Member
Clinical Expertise

Dr. Mukesh Pandey, Ph.D
Prof. of Radiology, Mayo Clinic, USA
Advisory Board Member, *Clinical Expertise*

Current State

Proof-of-principle has been achieved in Hevesy Laboratory at DTU Risø. To translate the technology from lab to bedside DTU Health Tech partnered with Herning Hospital. Due to difference in the cyclotron energy the translation will require additional adjustment and optimization. The new prototype/minimum viable product will have to be built.

Business opportunity and Call to action

- We are looking for an enthusiastic and business-minded co-founder/CEO to join our team and start a company. The co-founder will complement our existing technical and clinical expertise with strategic thinking, ability to identify product opportunities, make visionary business decisions, attract funding, and ensure long-term growth.
- We are also looking to attract an investor to fund the translation of Gallex technology to the Herning/Gødstrup Hospital.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

DTU

DTU Health Tech

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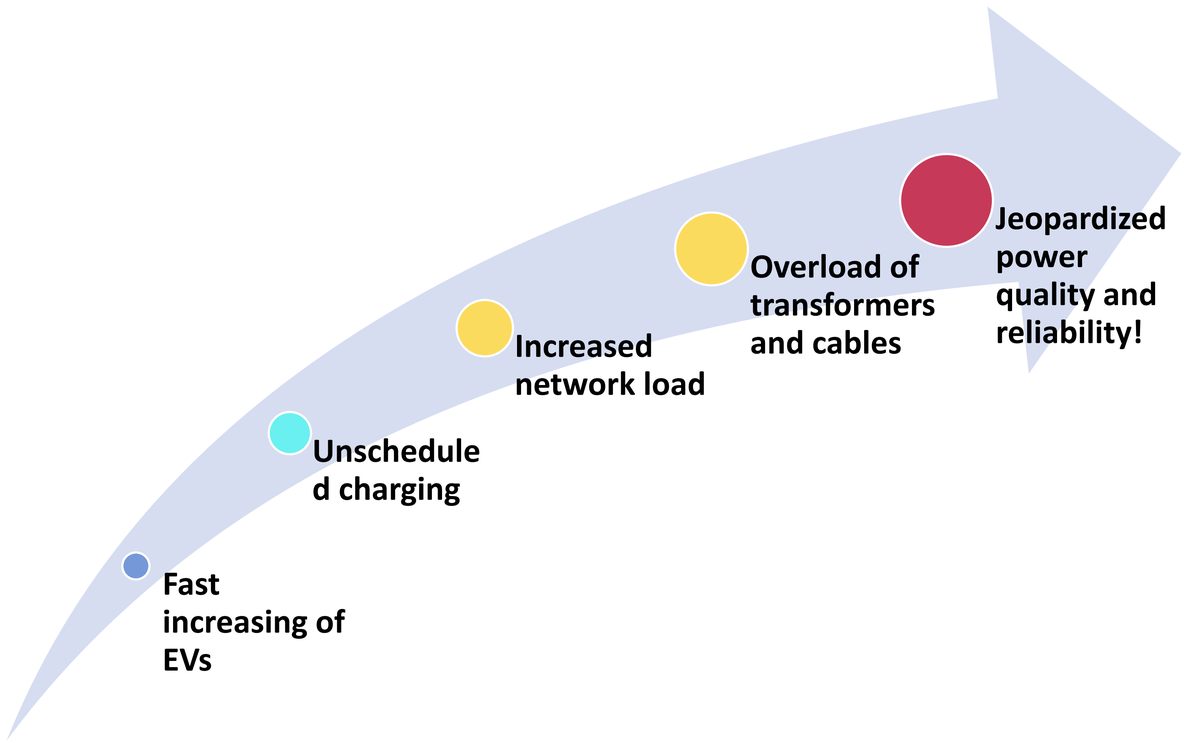
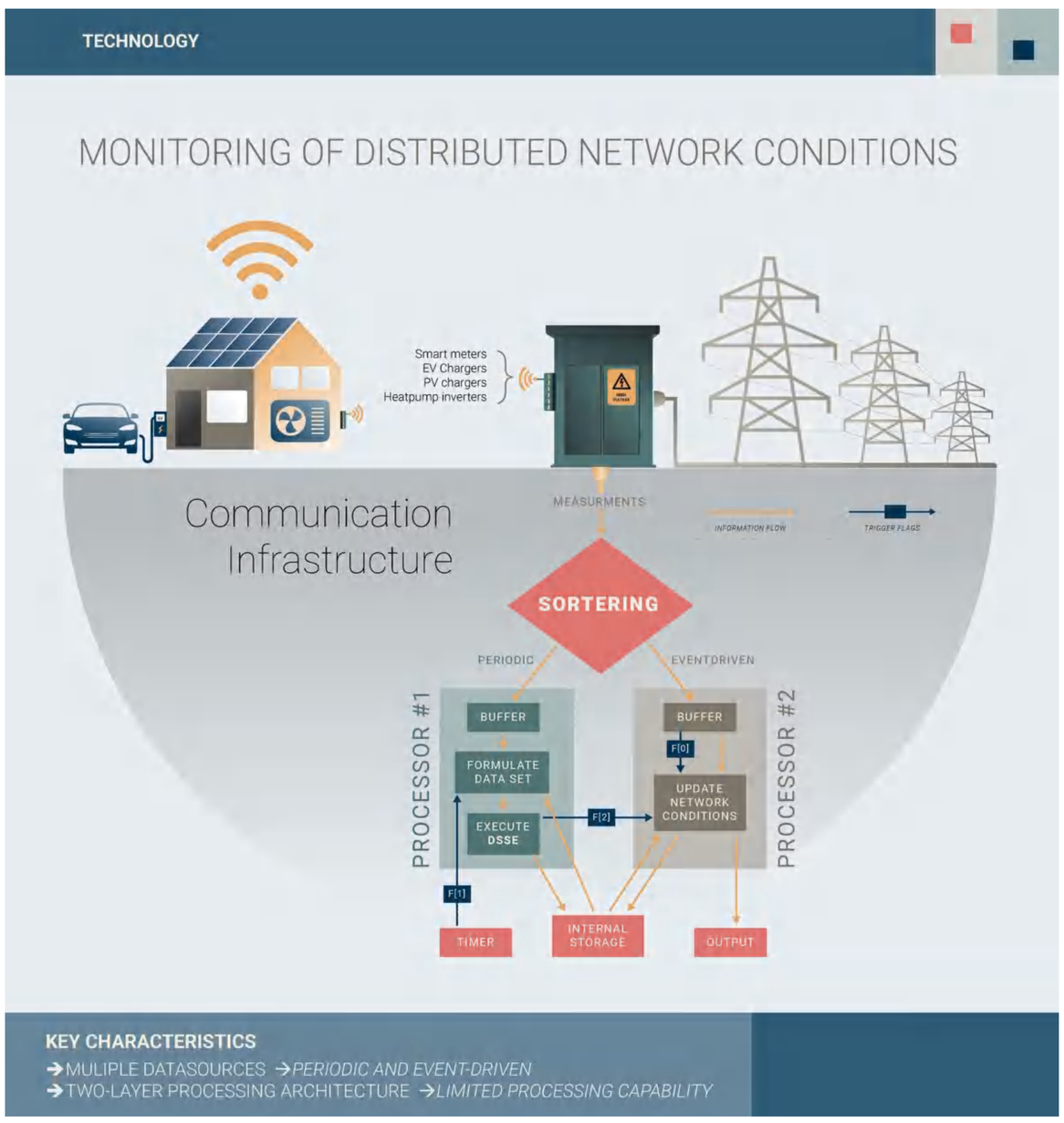
Flexibility enabling monitoring of electric distribution networks

Reduce cost for digitalization of distribution system

Digitisation, AI & Robotics

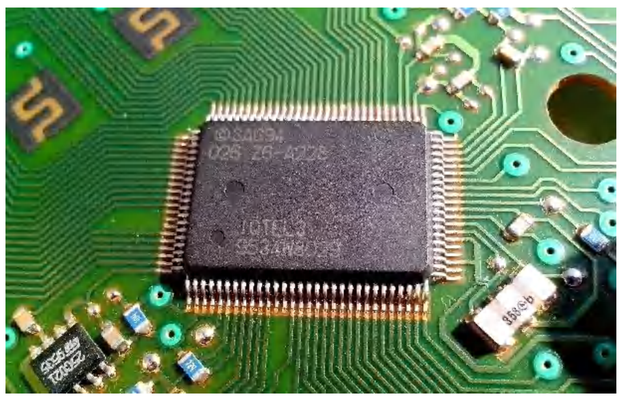
INNO Renewables





What we bring to our customers

- ❑ Reduced investment in digitalization and risks in re-investment
- ❑ Better monitoring of the asset and the energy flow
- ❑ Reduced technical barrier in applying digital solutions
- ❑ Efficient and quality data flow with reduced need in data storage



Technology Description

With the introduction of distributed energy sources (DER), such as rooftop solar photovoltaic (PV) power plants, electric vehicles (EV), and heat pumps (HP), the operational variability of power distribution systems has increased. Therefore, distribution network operators increasingly need to closely monitor their operating conditions. Low-voltage network monitoring has become the key to the implementation of smart grid technology.

This technology is designed to monitor the last mile of the power grid through edge computing. In the case of limited data. This technology is based on periodic or event-driven data to estimate the voltage quality of the power grid. The proposed technology solves the challenge of reliable monitoring of the low-voltage part of the distribution network of modern power systems.

The specialty of the technology is that with little amount of data it can still achieve good accuracy of monitoring.

Intellectual Property Rights

Method and System for Estimation and Monitoring of Distributed Network Conditions (WO 2020/260257 A1) (T. B. H. Rasmussen, Guangya Yang)

Team

Senior Researcher
Guangya Yang
CTO

Innovation lead
Longzhen Hu
COO

Current State

To date, the technology has been through simulation-based test with promising results and we are currently seeking opportunities for real life demonstration.
Initial steps for forming a demonstration project are taken together with relevant industry, showing the potential of the technology.

Business opportunity and Call to action

Through long-term scientific research projects, we have a good network in the industry, including system operators and developers, and we will develop products through in-depth interaction with them in R&D and business.

The team is looking for funding and partnership to further mature the technological and commercial foundation, possibly in collaboration with industrial partners.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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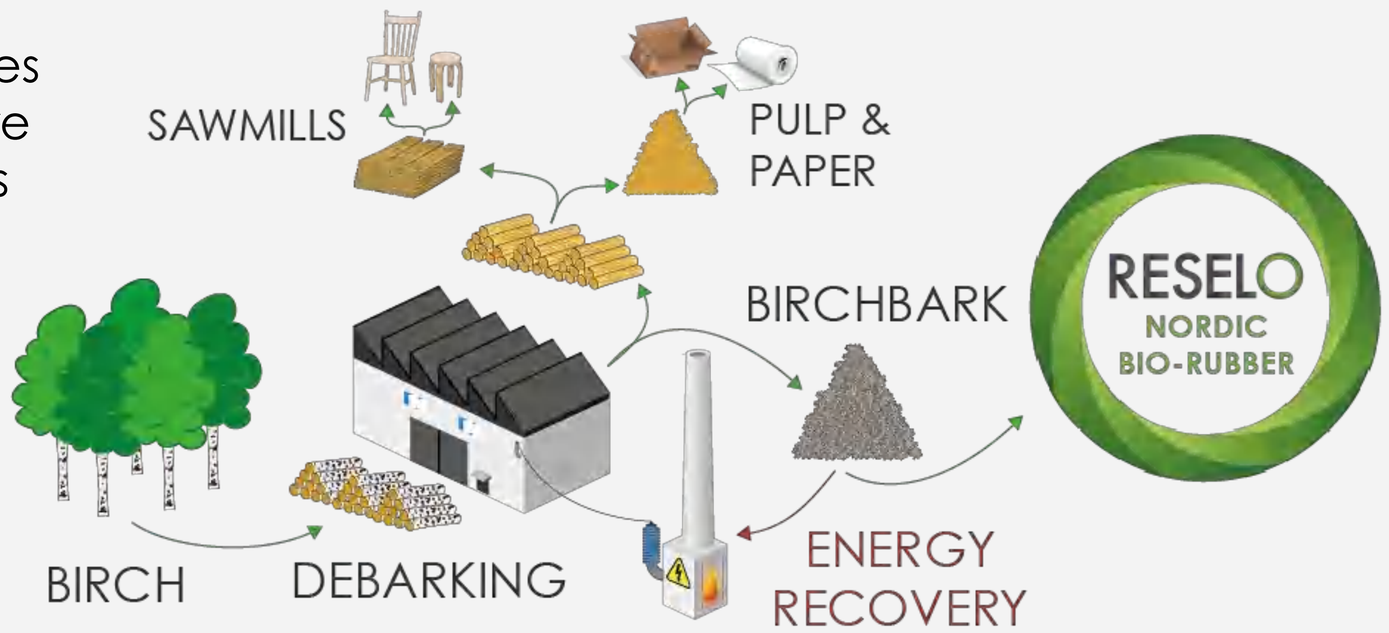
RESELO

Sustainability

Developing the first truly sustainable bio-rubber – NORDIC BIO-RUBBER™

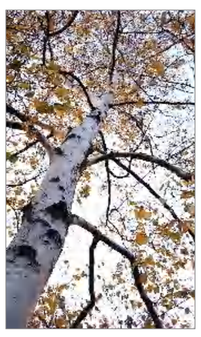
MATERIAL INTRODUCTION

RESELO offers solutions where residues from the pulp and paper industry are refined in a patent-pending process to produce sustainable polymers. The residue, or our raw material, comes from the birch tree and is a component not refined at all but in fact only burned for energy generation.



On average, a single mill creates 100,000 tons of this residue every year and Sweden and Finland together produces enough raw material for approx. 200 thousand tons of **NORDIC BIO-RUBBER**.

A **SUSTAINABLE FUTURE** FOR INDUSTRIAL POLYMERS AT **SCALE**!



Technology Description

The production of both, natural and synthetic rubbers, have negative consequences on the environment. As society shifts towards bio-based alternatives, we need a third rubber revolution to accommodate the needs for more sustainable rubbers.

With **Nordic Bio-Rubber** we have developed the first, truly sustainable rubber from birch bark.

Intellectual Property Rights

Dec 2020 – filing of patent application covering our novel material as well as it's underlying production process. Currently, we are registering the trademark Nordic Bio-Rubber within the EU.

Team

Thomas Baumgarten

PhD Scientist, developed RESELO's Nordic Bio-Rubber

Josefin Larsson

Chemical engineer & product development

Henrik Otendal

Strategy, digitalization, business- and organizational development

Alexander Johnson

Corporate finance, marketing, IT & digitalization, project management

Current State and next steps

We have demonstrated lab production and are in the TRL 4. As the markets are endless for polymers, we have identified the footwear sector as our first target market. We are currently running three R&D projects with well-known Swedish brands to evaluate material properties and explore how we can implement our material into their products.

To shorten time-to-market we are now looking for funding to increase our production capacity to be able to service customers and partners at a higher pace.

Business opportunity and Call to action

Possibility of production+sales or using a licensing model to create profit.

Reselo is especially looking for investors that have experience with material development, deep clean tech, and production and licensing of a new material.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

KTH VETENSKAP OCH KONST

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CaSR Nanobodies

A Novel Treatment Paradigm for Chronic Kidney Disease

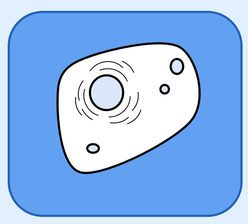
Biotech & Pharma

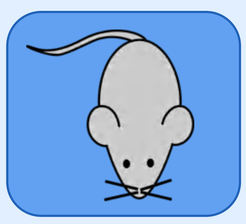
IMMUNIZATION AND SELECTION

NANOBODY IDENTIFICATION

TARGET VALIDATION

NANOBODY OPTIMIZATION


IN VITRO PROOF OF CONCEPT


IN VIVO PROOF OF CONCEPT

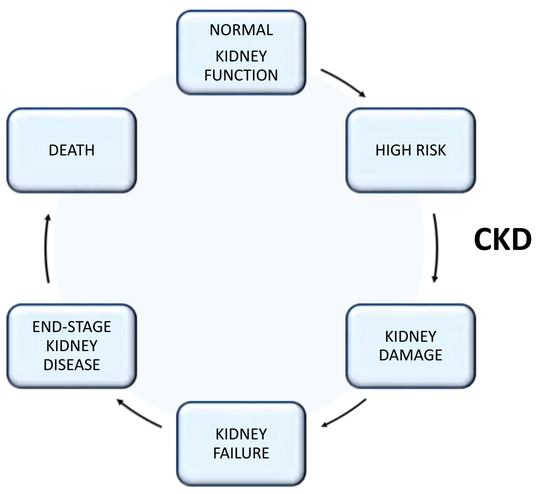
PRECLINICAL SAFETY STUDIES

CLINICAL STUDIES

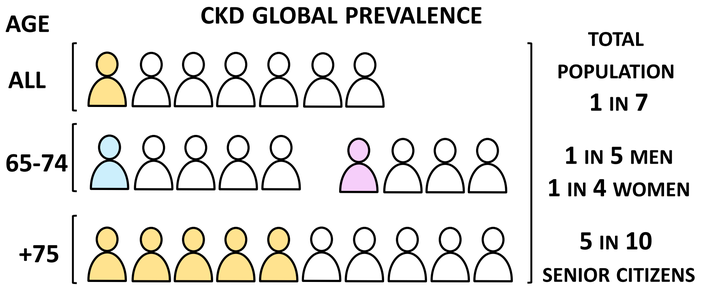
MARKET

Chronic Kidney Disease (CKD)

CLINICAL STAGES OF CKD



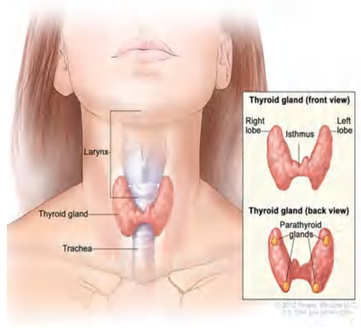
CKD GLOBAL PREVALENCE



- CKD IS A DISORDER THAT LEADS TO THE GRADUAL LOSS OF KIDNEY FUNCTION, IMPAIRING THE ABILITY TO MAINTAIN ION HOMEOSTASIS AND REGULATE URINARY SECRETION
- **CKD IS THE 12TH LEADING CAUSE OF DEATH WORLDWIDE**

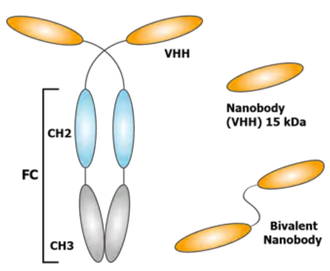
CaSR nanobodies

SECONDARY HYPERPARATHYROIDISM (SHPT)



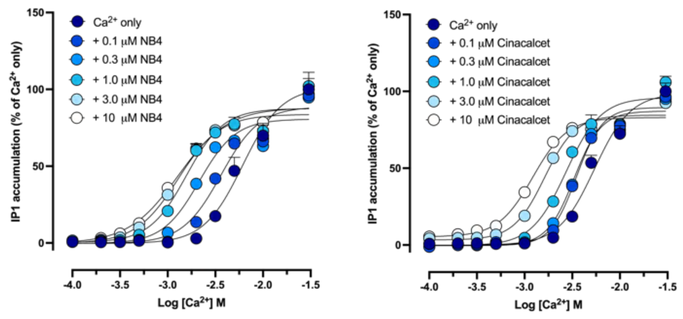
Source: www.niddk.nih.gov/health-information/endocrine-diseases/primary-hyperparathyroidism

NANOBODIES



Camelid single domain antibody (90 kDa)

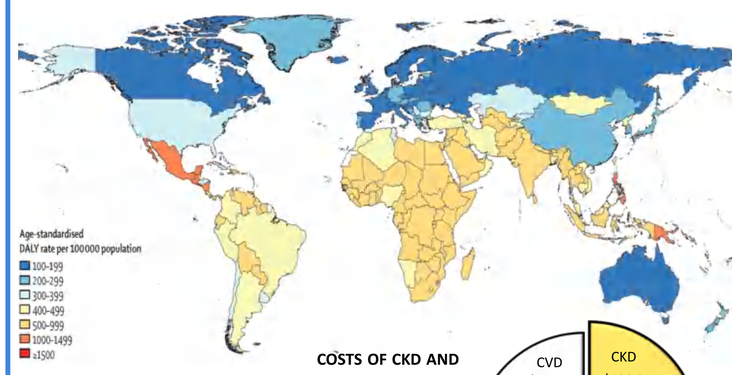
NANOBODIES: SIMILAR MODE-OF-ACTION AS CALCIMIMETICS



- SHPT: A COMMON COMPLICATION IN CKD. TREATMENT IS LIMITED DUE TO ADVERSE DRUG SIDE EFFECTS
- **NOVEL TREATMENT PARADIGM: NANOBODIES TARGETING CASR – A PIVOTAL REGULATOR OF ION HOMEOSTASIS**

Market Potential

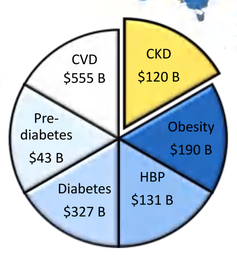
CKD: HEAVY ECONOMICAL BURDEN ON GLOBAL SOCIETY



Source: GBD Chronic Kidney Disease Collaboration (2020) Lancet, 395, 709–33

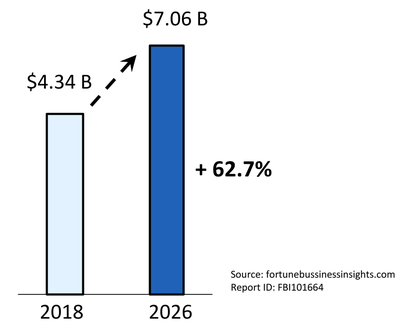
COSTS OF CKD AND RISK FACTORS (USA)

CVD: CARDIOVASCULAR DISEASE
HBP: HIGH BLOOD PRESSURE



Source: www.ethosbiosciences.com 'The costs of chronic kidney disease (CKD)'

DRUG MARKET (USA) SECONDARY HYPERPARATHYROIDISM



Source: fortunebussinessinsights.com Report ID: FBI101664

- FINANCIAL BURDEN ON GLOBAL SOCIETY EXPECTED TO INCREASE AS 90% OF AFFECTED INDIVIDUALS ARE NOT AWARE OF CKD
- **B$ DRUG MARKET SECONDARY HYPERPARATHYROIDISM EXPECTED TO FURTHER GROW**

Technology Description

We have developed a novel class of biologics (nanobodies) that target the calcium sensing receptor (CaSR) as treatment paradigm for chronic kidney disease (CKD) with secondary parathyroidism. Currently, secondary hyperparathyroidism (SHPT) is treated with a small molecule drug class ´calcimimetics´ that target CaSR. However, the use of these drugs is limited due to severe side effects in patients.

Our **solution** to overcome these side effects is **CaSR-targeting nanobodies**. Nanobodies are small variable domain fragments of single-domain antibodies derived from llamas offering several advantages compared to conventional antibodies. Thus, **nanobodies are excellent tools to therapeutically modulate receptors**, as they exhibit high target affinity and selectivity, and as conjugates offer an excellent avenue for tissue- and disease-specific modulation of the target to reduce adverse side effects.

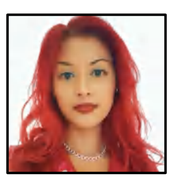
Intellectual Property Rights

CaSR nanobodies are patented under patent application EP19211709.1

Team

Hans Bräuner-Osborne
Professor
Co-founder

Jesper M. Mathiesen
Associate Professor
Co-founder


Sabrina N. Rahman
Postdoctoral researcher
Co-founder & CSO

Nawid Madjroh
Postdoctoral researcher

Wei Du
PhD student

Anne Mette H. Egholm
MSc Student

Advisory Board

Edward F. Nemeth
Chief Scientist MetisMedica
'Led team developing cinacalcet'

Rajesh V. Thakker
Professor Oxford University
´Opinion leader CaSR clinical pharmacology'

Current State

We have identified and characterized monovalent nanobodies *in vitro* to determine mode-of-action at target, and delineated nanobody-binding epitopes. We have developed humanized nanobody-FC conjugates to improve circulatory half life and target coverage, and bivalent nanobodies to improve pharmacology for the target. Moreover, we have explored the potential of combination therapy using nanobodies and calcimimetics.
Our **next step** is to test nanobodies and nanobody conjugates in pre-clinical *in vivo* models and further improve their pharmacokinetic and pharmacodynamic properties.

Business opportunity and Call to action

Our proof of concept is supported by the **NNF Pioneer Innovator**, **LF Experiment**, **DFF Research project I grants** (6M DKK in total)

We seek further **investment** to form a spin-out company from the University of Copenhagen. Funding will be used to test our lead drug candidate in pre-clinical models, progression towards a clinical stage ready molecule, and to strengthen our management team.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

UNIVERSITY OF COPENHAGEN

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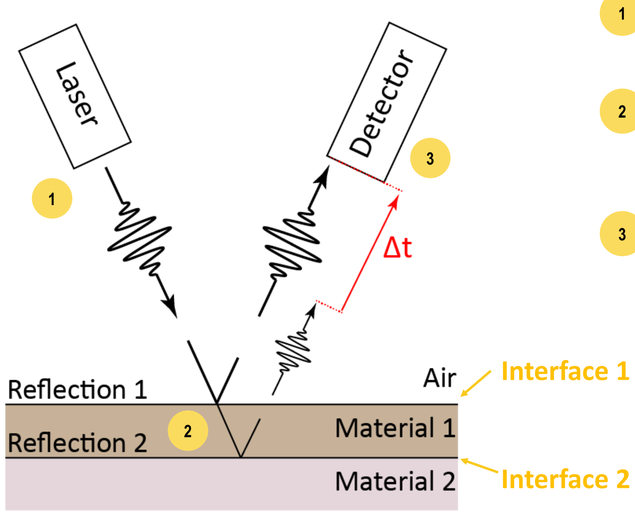
GLAZE

Advanced Production & Technologies

The world's most compact THz-system for non-contact non-destructive inspections.

Time of Flight Method



1. The sample is illuminated with THz light
2. Generation of two separate reflected pulses at the interface between different materials
3. The two reflected pulses are detected at different point in time

From Δt between the pulses we can retrieve the material thickness Δx

Key Features & addressed Industries

- Inspected product integrity not affected
- Method applicable to wide range of materials
- Non-contact measurements – no cross contamination
- Continuous measurements in real-time
- Suitable for in-line, on-line or at-line solutions in production facilities
- Accurate QA/QC

- Customer-validated applications in different sectors:

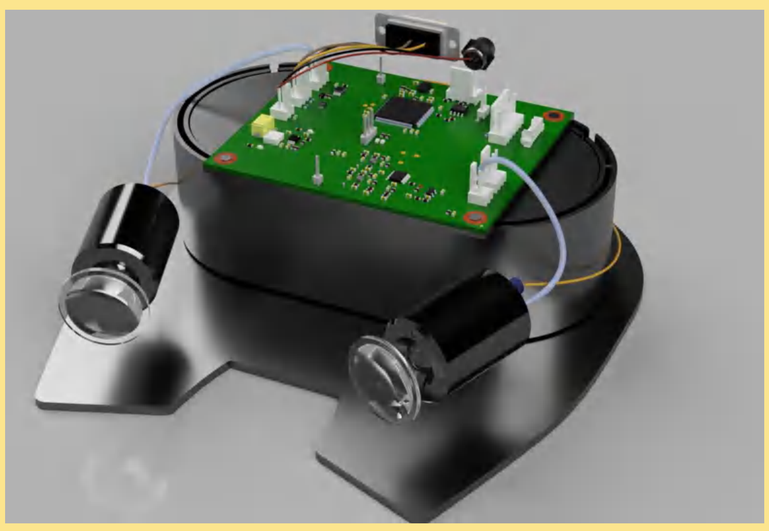
Food

Pharmaceutical

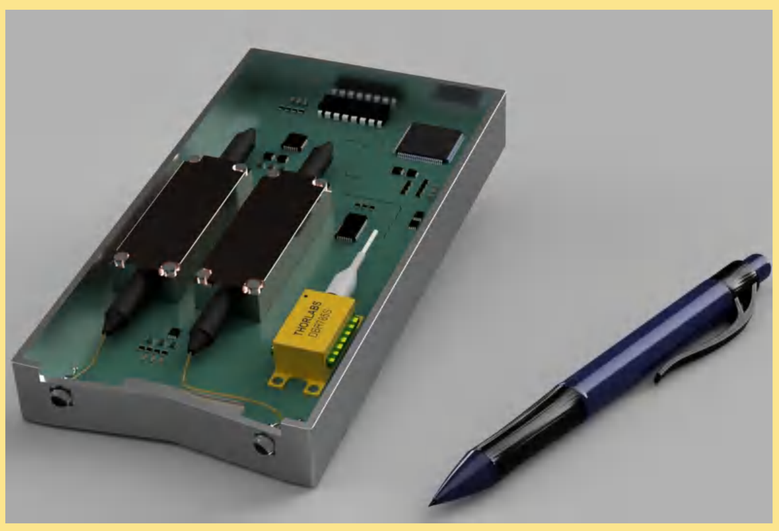
Energy

Maritime Coatings

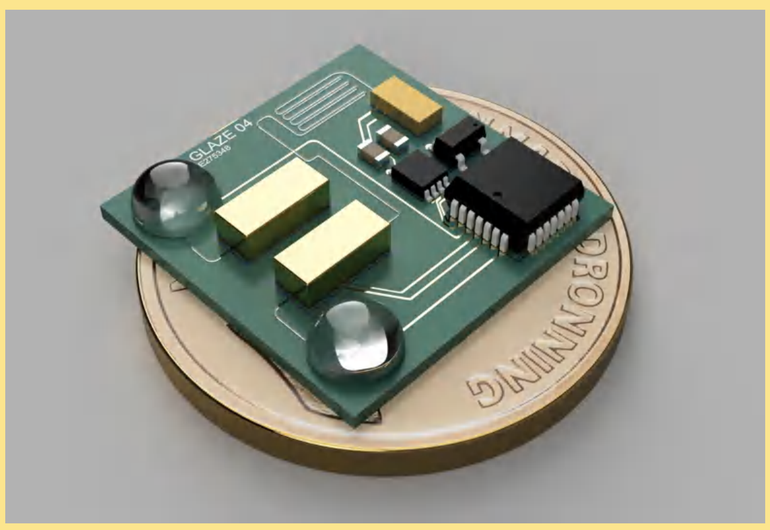
Technological development



CURRENT VERSION



FUTURE VERSION



FUTURE VERSION

Technology Description

We are developing a laser-based technology working following the time-of-flight-principle. The THz-light pulses reflected from different interfaces are converted to a thickness measurement.
The hardware is compact and 5 – 10 times cheaper than commercially available THz-systems and built with off the shelf components.

The method is self-referencing and is non-contact, non-destructive and allows for real-time measurements. Therefore, automated and continuous quality assurance of industrial procedures can be supported.

Intellectual Property Rights

An application patent ready for national phase (DTU ref. 69155).
A core technology patent has been submitted to EPO on August 24, 2021.

Team

Postdoc
Simon L. Lange
CEO

M.Sc. Photonics Eng.
Thorsten Bæk
Hardware Engineer

M.Sc. Photonics Eng.
Oscar G. Garcia
R&D Engineer

Ph.D. Student
Miriam Galbiati
Business Developer

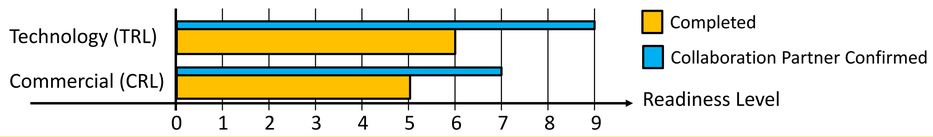
Ph.D.
Nicklas W. Svendsen
Business Developer

Ph.D. Student
Mads Ehrhorn
Software Developer

M.Sc. Computational Physics
Bjørn Mølvig
Lead software architect

Current State

We have demonstrated that the method works conducting pilot-tests with different potential customers. We have built a hardware functional model ready to be tested in simulated operational environment. Currently at stage 6 and 5 on TRL and CRL scales.



Business opportunity and Call to action

Next step is to establish a spin-out company.

Looking for industrial collaborators.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

DTU Technical University of Denmark

Contact information
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CEO / post-doc
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slla@fotonik.dtu.dk

VENOMAID DIAGNOSTICS

VenomAid

Transforming snakebite management, one diagnosis at a time

Medtech & Diagnostics

We tackle one of the world's most neglected tropical diseases

Six billion people live at risk of suffering from the WHO-listed neglected tropical disease: snakebite envenoming.

The disease has 5 million people in its fangs every year, devouring 11-13 million Disability Adjusted Life Years (DALYs) - the impact of prostate cancer and viral hepatitis combined. When envenomed, you desperately need the scarcely available treatment, specific antivenom.

Doctors rely on your description of the event and your symptoms to identify the snake, delaying your life-saving treatment.

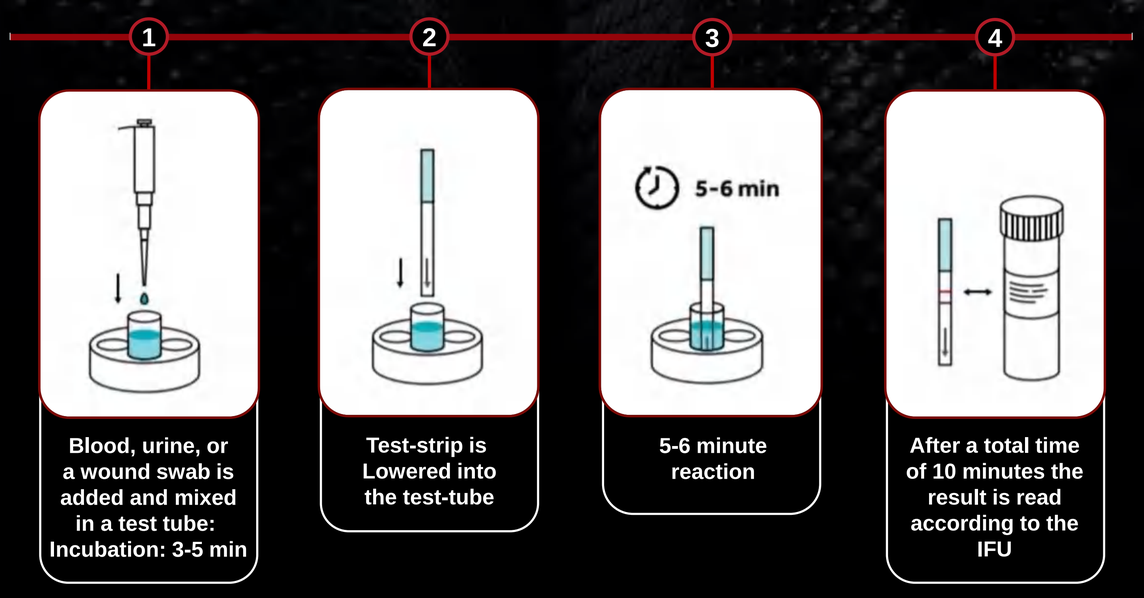
Unfortunately, once you start presenting characteristic symptoms, it is often too late for full recovery, as the toxins have already exerted their damaging, frequently irreversible effects.

Snakebites in India (B2G/B2B):
~1.6 M cases/year | USD 80 M opportunity

Scorpion stings in LATAM (B2G):
160,000 cases/year | USD 30 M opportunity

Snakebites in LATAM (flagship):
~60,000 cases/year | USD 20 M opportunity
Establishing proof of concept and proof of business for further growth

Snakebites in Africa (B2G/B2B/NGO's) – PoC √:
1.5 M cases/year | USD 40 M opportunity



The VenomAid DIAGNOSTICK

The VenomAid Diagnostick is an affordable and sensitive test capable of providing a clinically relevant diagnostic result within minutes of loading a sample onto the device.

By quickly detecting which snake bit you, the doctors can start early and correct treatment, saving costs, and more importantly, **lives**.

We estimate that up to **77% of the costs of treatment and hospitalization ($980.33)** can be saved by shortening time from bite to treatment. The Diagnostick can facilitate this much needed rapid and reliable diagnosis.

Technology Description

Our first product is a disposable LFA (lateral flow assay) capable of diagnosing the most medically relevant snake in Brazil, *Bothrops*. When a sample is applied to the LFA, the presence of a specific toxin causes a color to appear on the test line, visible to the naked eye. A control line will show independently of the presence of a toxin, confirming that the test is functional.

With our product, even inexperienced health personnel can perform an early and correct diagnosis, firmly establishing the identity of the responsible snake even before symptoms arise. This allows immediate administration of the most effective treatment. The test will be affordable (COGS: USD ~1), rapid (5-10 min), and stable at ambient temperature, requiring no special storage considerations during transport or at the medical facility.

Intellectual Property Rights

A patent application is being drafted covering lead antibodies and their combination with the gRAD platform. The application will be filed 2021Q4, with the ownership being split 50/50 between VenomAid and BioPorto, but VenomAid will retain exclusive licensing rights.

Team

CEO & Co-founder
Jonas A. Jürgensen
M.Sc. Molecular Biomedicine

CTO & Co-founder
Søren H. Dam
M.Sc. Bioinformatics & Systems Biology

CSO & Co-founder
Cecilie Knudsen
Industrial PhD, M.Sc. Molecular Biomedicine

Scientific Advisor & Co-founder
Andreas H. Laustsen
Assoc. Prof. At DTU Bioengineering, serial-entreprenur., advisor for WHO on snakebite envenoming

Commercial Advisor
Jens Bøegh
Cand. Merc. International Business, 25 years commerciel experience, including Latin America

Commercial Advisor
Henrik Harboe
MD, Entrepreneur, Advisor, and Board member in several Medico start-ups.

Commercial Advisor
Jesper Kihl
40 years of Life Science experience, mostly in executive and leadership positions

Current State

During this fall, we will have our prototype evaluated on patient samples collected from the Brazilian Amazon. Establishing an early clinical verification will allow us to have our prototype approved as a 'Research Use Only'. We will conduct the trials necessary for an up-classification of the RUO kit and bring our kits for the two remaining Brazilian snake groups to the RUO stage.

Business opportunity and Call to action

By providing a suite of companion diagnostics for antivenom treatment, VenomAid is positioned to capture a market share worth at least 5% of the current antivenom market, which amounts to USD +150 M/year by 2030 - only by developing solutions for the key markets: Latin America, USA, India, and Africa.
We are currently raising a pre-seed round and are looking to engage with investors. The Pre-seed will allow VenomAid to fast-track our first product to market in Brazil, establishing necessary commercial partnerships, and performing necessary clinical testing.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

Contact information
Jonas A. Jürgensen
CEO & Co-founder
+45 3048 2747
jaj@venomaid.com

OCTLIGHT

- Fast and Improved Diagnostics of Eye Diseases

Medtech & Diagnostics

OPTICAL DIAGNOSTICS LACK COMPREHENSIVE INFORMATION

Optical Coherence Tomography (OCT) is the golden standard for diagnostics and SS-OCT improves treatment

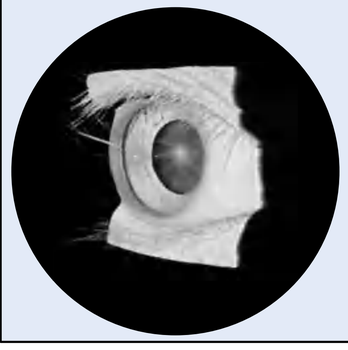
Spectral domain OCT

Limitations

- Slow scanning speed
- Poor 3D image quality
- Limited imaging range

Source: WHO; NIH-NEI; Wikipedia; Grulkowski 2012

Swept source OCT



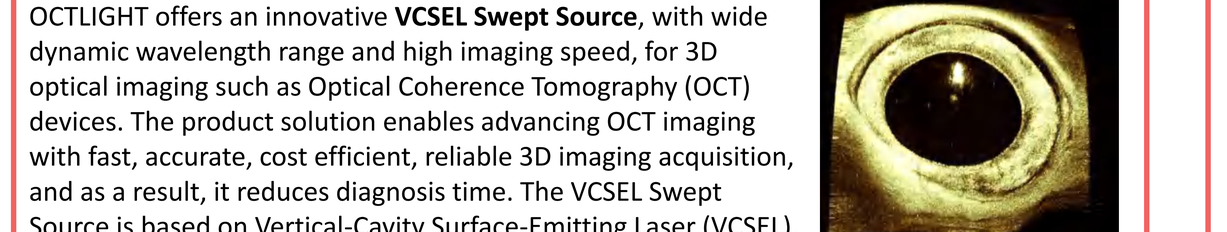
Advantages

- Fast scanning, real-time
- High resolution 3D
- Long imaging range

Limitations

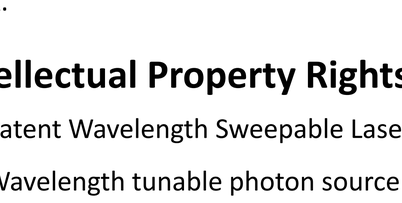
- Scan speed vs. Imaging range
- Device reliability
- Bulky units
- High cost

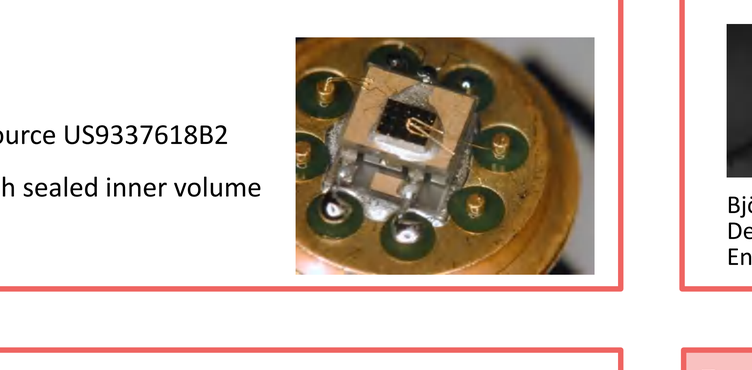
PROFITABLE POSITION AS KEY SUPPLIER IN VALUE CHAIN



HIGH GROWTH MARKETDRIVEN BY AGING POPULATION

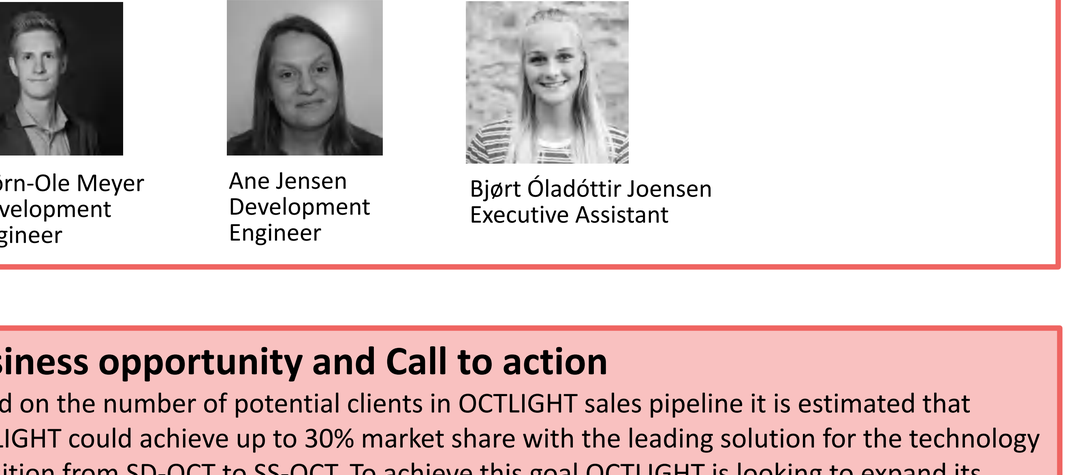
PATENTED TECHNOLOGY WITH UNIQUE BENEFITS





1. Proprietary laser chip design based on MEMS VCSEL platform technology
2. Core technology protected by patents.
3. Easy integration into OEM instrument
4. Compact design (mm) 189x114x56.5

EXPANDING SCOPE OF APPLICATIONS



https://aarhusuniversitet.sharepoint.com/:b:/UNordicInnovationSummit/Delte%20dokumenness%20opportunities%202022/Arkiv/Poster%df?csf=1&web=1&e=KCNDR4

Technology Description

OCTLIGHT offers an innovative **VCSEL Swept Source**, with wide dynamic wavelength range and high imaging speed, for 3D optical imaging such as Optical Coherence Tomography (OCT) devices. The product solution enables advancing OCT imaging with fast, accurate, cost efficient, reliable 3D imaging acquisition, and as a result, it reduces diagnosis time. The VCSEL Swept Source is based on Vertical-Cavity Surface-Emitting Laser (VCSEL), marketed under the brand names Caliper-HERO and Caliper-FLEX.

Intellectual Property Rights

- Patent Wavelength Sweepable Laser Source US9337618B2
- Wavelength tunable photon source with sealed inner volume US9438009B2

Team

Thor Ersted Ansbæk
CEO

Kresten Yvind
CTO

Thomas Alkeskjold
Product Manager

Pia Aarestrup
Sales and Marketing

Björn-Ole Meyer
Development Engineer

Ane Jensen
Development Engineer

Bjørt Óladóttir Joensen
Executive Assistant

Current State

Technology spin-out in 2015 with follow-up investment from Syddansk Innovation and Business Angels. In 2019, the first product Caliper was introduced to market and in the same year the first prototype was delivered to the customer and gained a positive feedback from the primary stakeholders like; Carl Zeiss Meditec, Topcon, Optos and Heidelberg Engineering. The near-future plan is to supply to major players in Ophthalmic OCT, scale up production, and gain market leadership in VCSEL Swept Source in other verticals.

Business opportunity and Call to action

Based on the number of potential clients in OCTLIGHT sales pipeline it is estimated that OCTLIGHT could achieve up to 30% market share with the leading solution for the technology transition from SD-OCT to SS-OCT. To achieve this goal OCTLIGHT is looking to expand its group of owners with investors with focus on deeptech, and with photonics in their investment focus –both financial and strategic investors.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

DTU

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CEO
26838462
Thor@octlight.com

Platinum/Rare Earth Nano-alloy

Sustainability

A super-active and durable catalyst for fuel cells

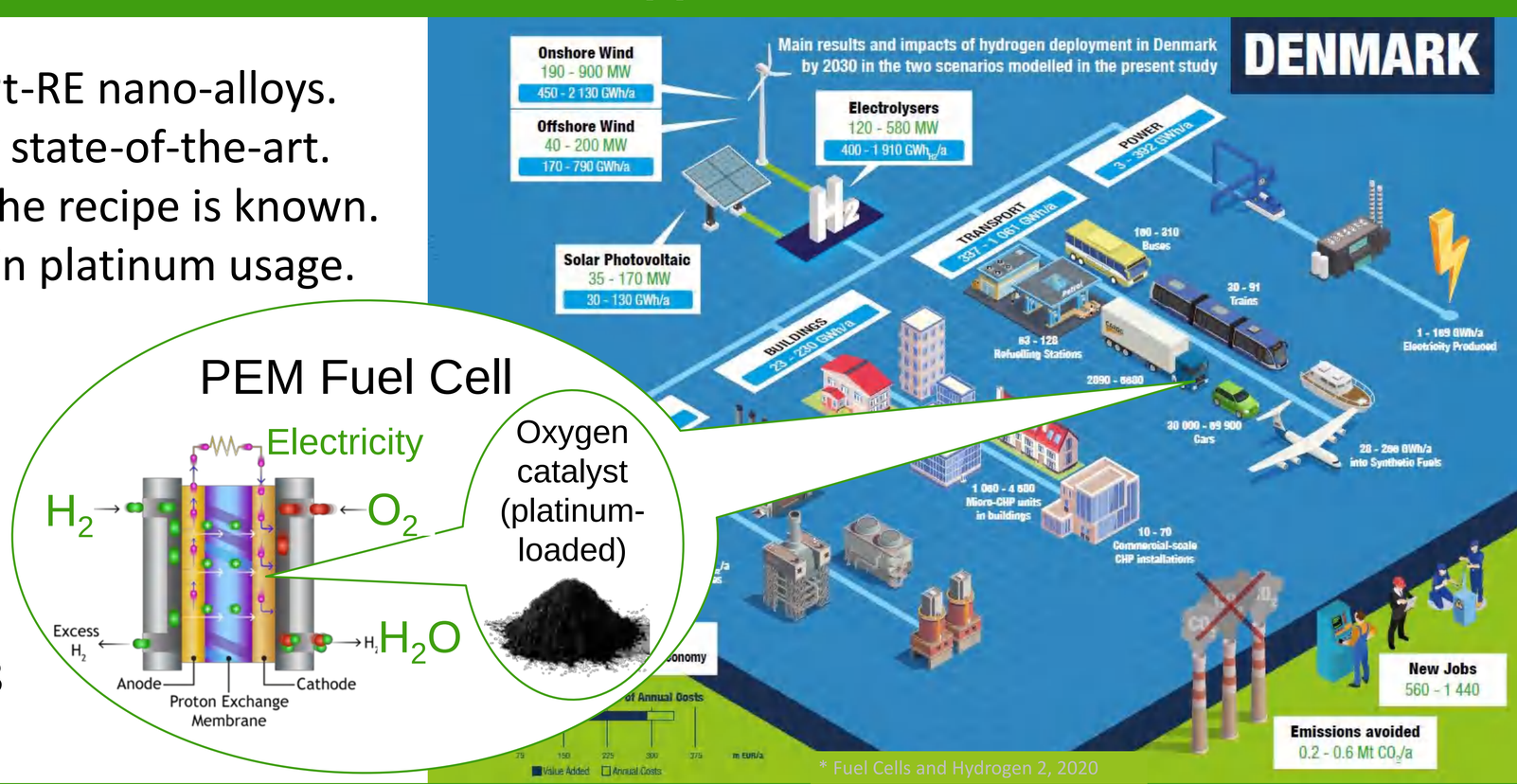
Key selling points

We have developed a method to produce Pt-RE nano-alloys.
A super-active and durable catalyst beating state-of-the-art.
The method is simple and scalable – once the recipe is known.
With 3x activity we achieve a 3x reduction in platinum usage.

The method is proven for multiple alloys
- usable for other clean energy applications

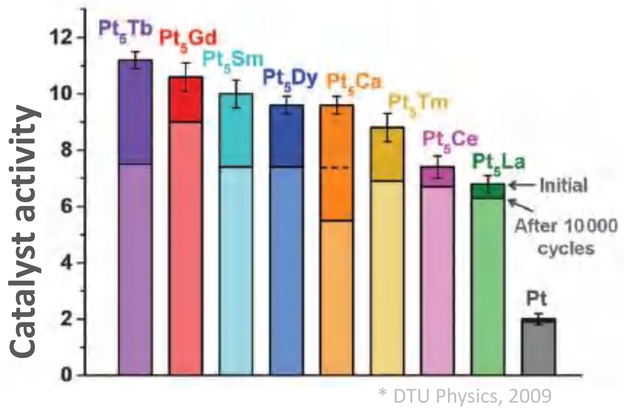
Fuel cells are on a steep growth curve.
+50,000 fuel cells shipped 2020 (> 1 GW)
Forecast to grow 5-10 times from ‘21 to ’28

Field of application – P2X / X2P



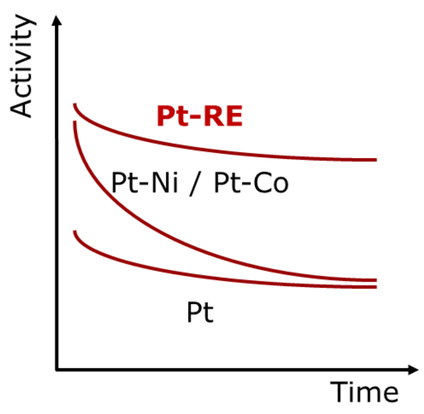
Super-active and durable

Platinum – Rare Earth vs. pure Platinum



* DTU Physics, 2009

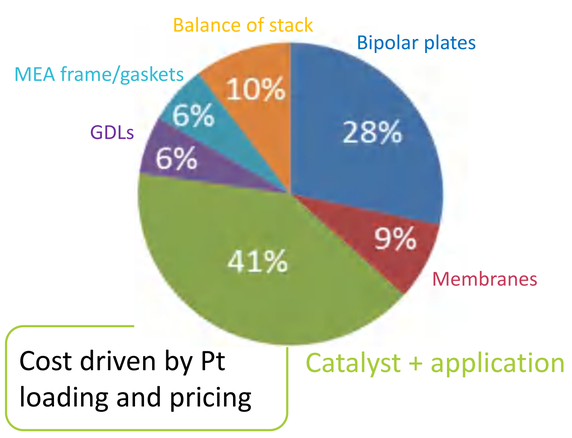
Platinum – Rare Earth vs. state-of-the-art catalyst



Cost savings

Cost breakdown for Fuel Cell stack

New catalyst: 28% savings on fuel cell stack



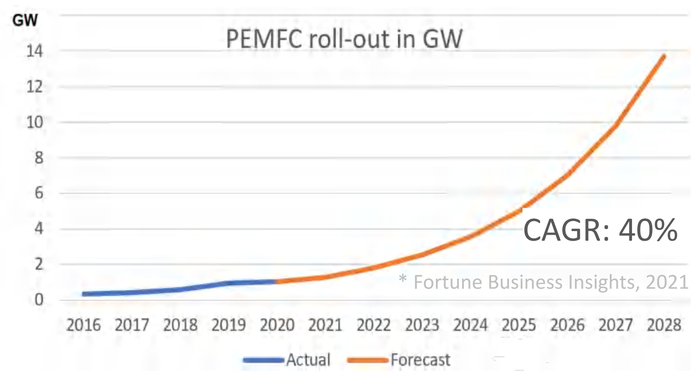
Cost driven by Pt loading and pricing

Catalyst + application

Fuel cells on the rise

Actual and forecast shipment of fuel cells

Forecast to grow 5-10 times from ’21 to ’28



* Fortune Business Insights, 2021

Technology Description

Platinum is the optimal catalyst for oxygen ionization. Platinum is, however, scarce and with rising demands, price is going up. Hence, the search for alloys which increase the activity of the platinum has been going on for two decades. In 2009, DTU Physics demonstrated that the combination of platinum and rare earth metals show very high activity while being almost as durable at platinum alone. Unfortunately, it is very difficult to combine platinum and rare earths into an alloy. In 2018, this team at DTU Energy reached a breakthrough being able to produce the alloy in quantities of grams. The key to the method is stabilization of the RE ions. The production method is simple to perform and does not need a high purity environment. Further, it is scalable, making a production line feasible.

The method is applicable on multiple other hardly attainable high-performance alloys for the green energy industry. These opportunities will be pursued once our first product has been matured for production.

Intellectual Property Rights

DTU Patent (WO2020065005) on production method filed in 2018 – national phase from ‘21.

The team has obtained option on exclusive license for use of the IP.

Team

Entrepreneur
Christian Nielsen

Assistant Professor, PhD
Yang Hu

Professor
Jens Oluf Jensen

Professor
Qingfeng Li

Postdoc, PhD
Benedikt Axel Brandes

PhD Student
Quan Zhou

Head of Section, Associate Professor
Lars N. Cleemann

Current State

The Pt-RE alloy is in TRL4. Samples have been sent to in-system tests at our partners in the fuel cell industry. We are currently focusing on a few rare earth metals optimizing the particle sizes for the best possible performance. From there we focus on scaling the batch sizes from a few grams to 100s of grams. We expect to be in position to incorporate and start production in second half of 2022.

Business opportunity and Call to action

Our goal is to create a DTU spin-out in 2022, becoming a leading supplier – production and sales – of state-of-the-art catalysts for green energy. Our first product will be the Pt-RE nano-alloy for PEM fuel cells.

We look for sparring partners on production scaling. When approaching incorporation in 2022, we further look for investors and possibly cofounders who understand the green energy industry and markets.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

DTU

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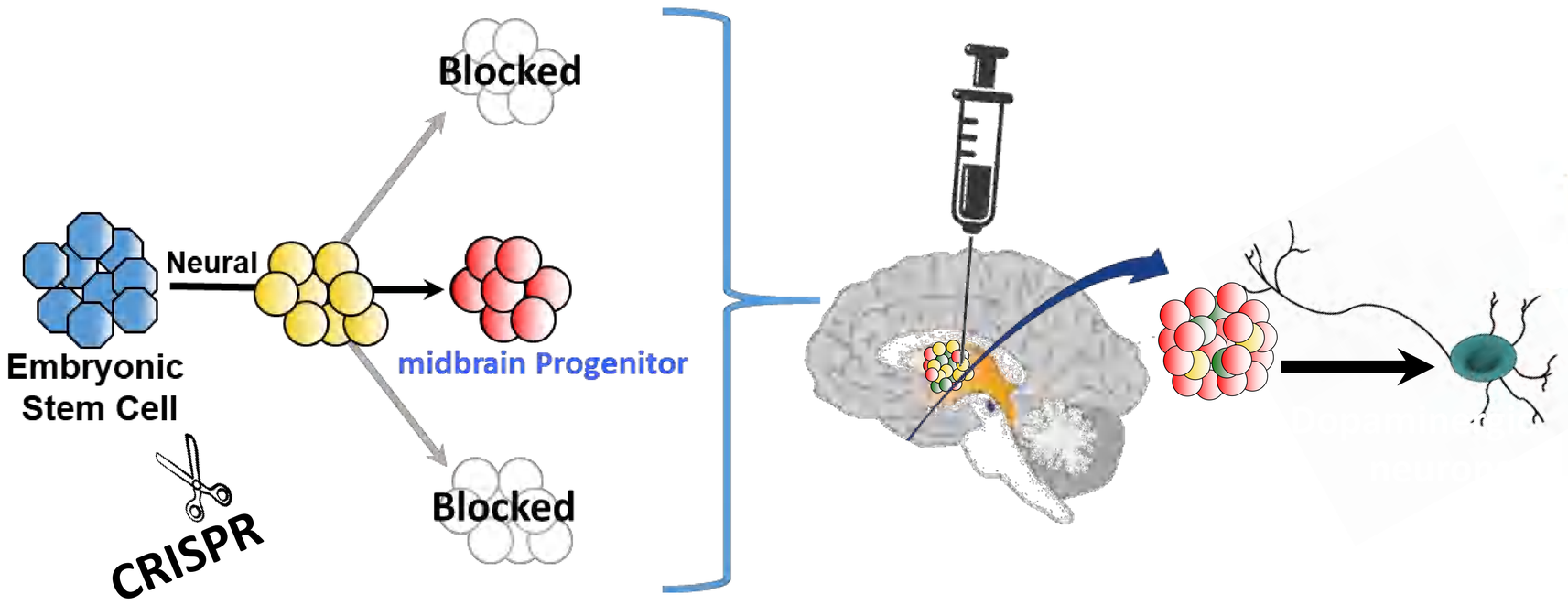
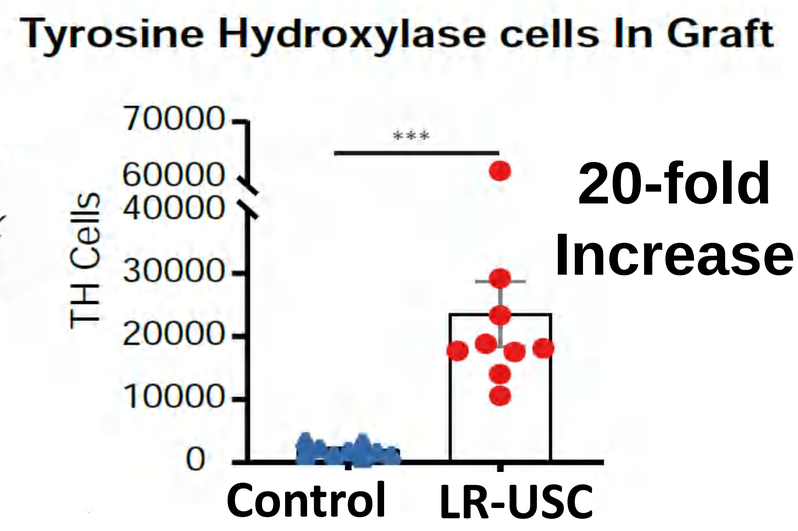
A Novel Stem Cell Therapy for Parkinson's Disease

Biotech & Pharma

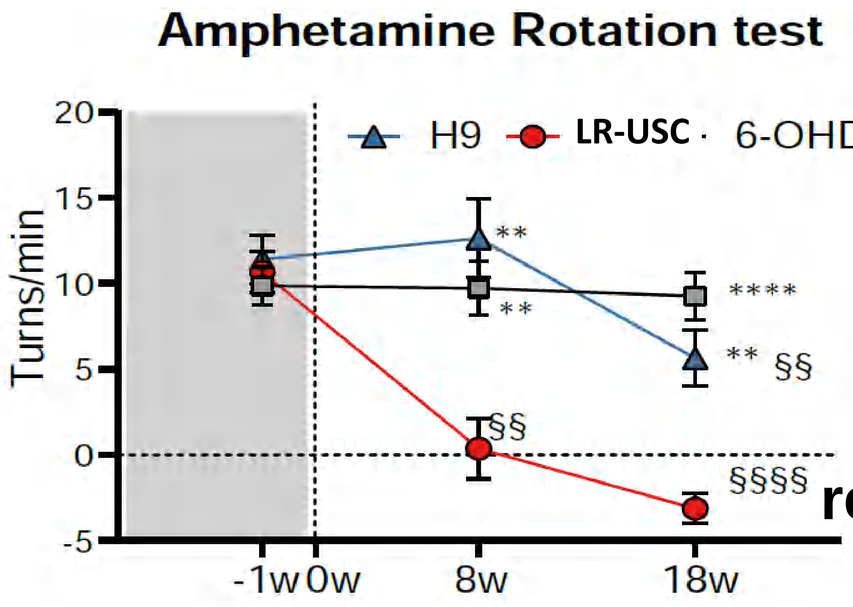
Controlling Stem Cell Differentiation with Lineage-Restricted Stem Cells

Lineage-Restricted Stem Cells:

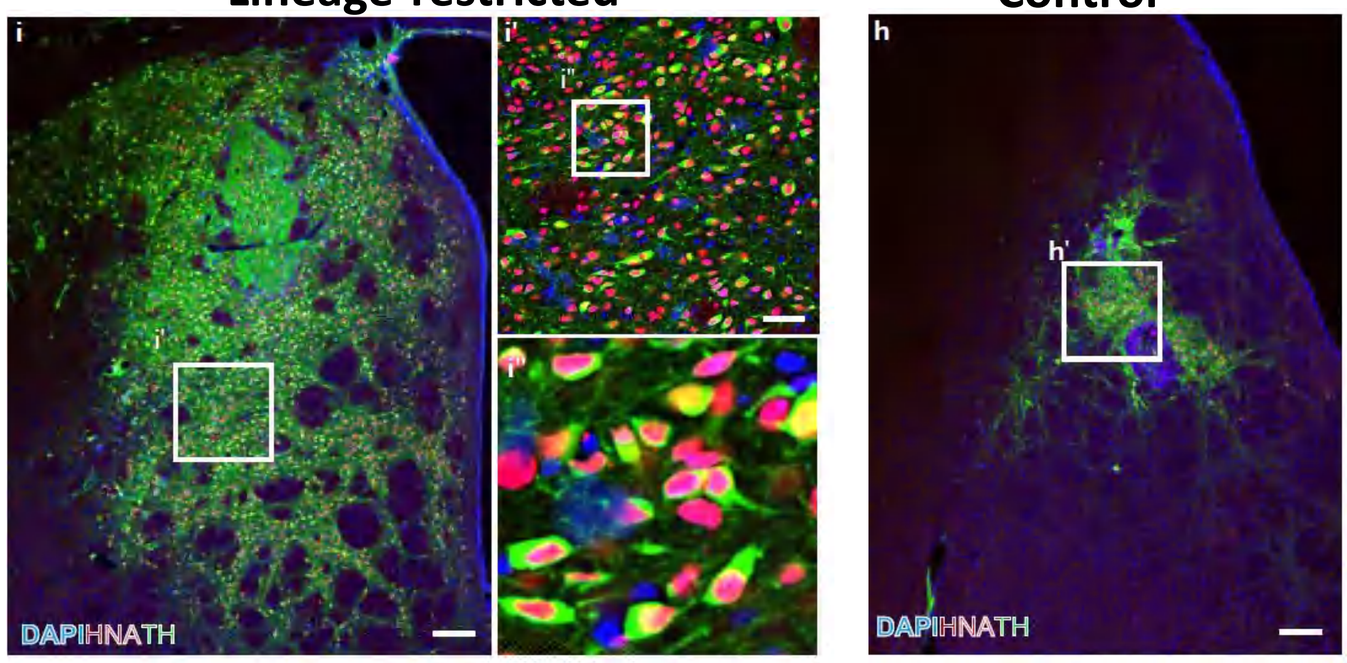




In vivo transplantation results:



Rapid recovery!



Technology Description

Unmet need: Current stem cell methods only produce 5% of dopaminergic neurons after transplantation.

RISKS with current methods: Uncontrolled growth of unwanted cells in the brain
Dyskinesia from serotonergic neurons
Batch to batch variability.

We created lineage-restricted undifferentiated stem cells (LR-USCs) that efficiently make dopaminergic neurons. We genetically modified human pluripotent stem cells and knocked out genes critical for their differentiation to undesirable cell types, thus they efficiently make dopaminergic neurons.

Lineage-restricted stem cells: reduce these risks and have higher efficiency, reproducibility and scalability

LR-USCs are ideal for use in a cell replacement therapy for Parkinson's disease.

LR-USCs can be engineered to generate other cell types for other diseases.

Intellectual Property Rights

Patent application has been filed in December 2020.

Team

Assoc. Prof.
Mark Denham

Assist. Prof.
Muwan Chen

Current State

in vivo experiments have been performed and key results are shown above.

We are looking for additional funding to further develop the technology and to perform additional benchmarking studies.

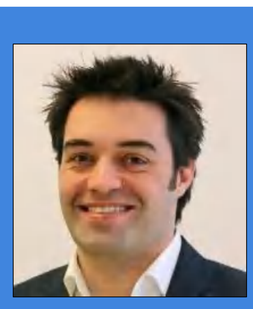
Business opportunity and Call to action

We are looking to create spin-out and continue developing the technology and perform further benchmarking studies.

We are looking for investors to help establish the business.

Additionally, we are looking for people to perform regulatory analysis.

Nordic Innovation Fair
Business Opportunities from Nordic Research Institutions

AARHUS UNIVERSITY

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