HIHR
Healthy Ideas
Healthy Returns

Program
&
Summary propositions

HIHR 6th edition

by virtual sessions

June 2020

Participating academic institutions in the Benelux, incl their UMC's

Amsterdam UMC Universitair Medische Centra
Erasmus MC University Medical Center Rotterdam
GHENT UNIVERSITY
Hubrecht Institute Developmental Biology and Stem Cell Research
imec
KU LEUVEN
LIÈGE université
LUXEMBOURG INSTITUTE OF HEALTH RESEARCH DEDICATED TO LIFE
NETHERLANDS CANCER INSTITUTE ANTONI VAN LEEUWENHOEK
Oncode Institute
Radboud Universiteit
university of groningen
TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY
UCLouvain
Universiteit Antwerpen
UHASSELT KNOWLEDGE IN ACTION
UMONS Université de Mons
UNIVERSITÉ DE NAMUR
uni.lu UNIVERSITÉ DU LUXEMBOURG
Universiteit Leiden The Netherlands
ULB UNIVERSITÉ LIBRE DE BRUXELLES
UNIVERSITY OF TWENTE.
Utrecht University
UNIVERSITEIT VAN AMSTERDAM
VU VRIJE UNIVERSITEIT AMSTERDAM
VIB
VUB VRIJE UNIVERSITEIT BRUSSEL

Preferred partner

Johnson & Johnson INNOVATION

Silver partner

inkef capital

Content

Program online pitch sessions, 10 June

Program

6th edition Healthy Ideas, Healthy Returns

Wednesday 10 June, 09.30 – 10.50 & 12.00 – 13.05

by virtual sessions

On June 8 or 9 you will receive the **a link to our conferencing facility.**

09.25	Please connect to our online facility, test your settings and join the last instructions.			
09.30	word of welcome & opening remarks		Filip Goossens	HIHR
09.35	Intro J&J-I on *The European Lead Factory*		Peter Roevens	JNJ-I
09.45	**Pulsify Medical**	MedTech / Diagnostics	Iwan van Vijfeijken	IMEC
09.59	**OrganoTherapeutics***	Therapeutics & Biotech	Jens Schwamborn	ULuxembourg
10.06	*5 min break*			
10.11	**Panorama Laboratories**	MedTech / Diagnostics	Max Green	ULeiden
10.25	**NC Biomatrix B.V.***	Therapeutics & Biotech	Robert Guilleaume	TUEindhoven
10.32	*5 min break*			
10.37	**PUXANO**	Therapeutics & Biotech	Wouter van Putte	UGhent
10.50	end session 1			
	Evt 1:1 follow up calls			
11.55	Please reconnect for the second session			
12.00	start session 2			
12.01	**BIMINI Biotech BV**	Therapeutics & Biotech	Digvijay Gahtory	UUtrecht
12.15	**ECsens**	MedTech / Diagnostics	Dilu Mathew	UTwente
12.28	*5 min break*			
12.33	**Azalea Vision**	MedTech / Diagnostics	Enrique Vega	IMEC / Gent
12.47	**VitroScan BV**	MedTech / Diagnostics	Willemijn Vader	ULeiden
13.00	Closing remarks			
13.05	end of program			
	Evt 1:1 follow up calls			

Pitches will last for a maximum of 8 min. presentation, followed by 5 min Q&A (+1 min change)
Elevator pitches* contain of a 5 min presentation plus 2 min Q&A (+1 min change)
Due to the density of the programme we must strictly adhere to the schedule.

To compensate the loss of networking opportunities, we offer you 1:1 follow up calls with spin off presenters. If you are interested in one or more of these conversations, than please either send a chat-message during the pitch session by a ***chat to the hosts*** or send an email to claar-els@hihr.eu and we will facilitate a talk shortly after the pitch session or during one of the following days.

Overview Quickfire sessions

Time slots will be allocated and communicated early June

1. Cenya imaging
Translatable multimodal imaging agent for tracking cell therapies in vivo. Measuring biodistribution of cell therapies in humans
MedTech/Diagnostics - RadboudUMC

2. GenoMask
Early stage filtering and masking for genomic information protection
eHealth/Datascience - ULuxembourg

3. HeartKinetics
Remote cardiac mechanical function monitoring to prevent heart failure patients rehospitalization
MedTech/Diagnostics; eHealth datascience - ULB

4. Levels Diagnostics
A test to differentiate viral and bacterial respiratory tract infections
MedTech/Diagnostics - ULeiden

5. LiveDrop
The single-cell manipulator that helps fighting against serious disease
Therapeutics/Biotech - ULiege

6. Nium SARL
FHM Change initiative; Acting on Food, Habit and Metabolism to promote better health
eHealth/Datascience - ULuxembourg

7. PDE4-Inhibitors
A novel target in remyelination; Multiple sclerosis, oligodendrocytes, schwann cells, demyelinationing disorders
Therapeutics/Biotech - UHasselt

8. PERSUASIVE
Innovative diagnostic blood test identifying stable coronary artery disease (SA) in chest pain patients
MedTech/Diagnostics - UUtrecht

9. Predica Diagnostics
Non-invasive predictive and prognostic diagnostics for cervical cancer
MedTech/Diagnostics - Radboud UMC

10. Taurion
Hunting Fluorescence Lifetime - the next level imaging camera for fluorescence guided surgery
MedTech/Diagnostics – VUB

11. Tumescence Wearable App (TUWA)
A new measurement technique to monitor the penile tumescence and rigidity in a more comfortable way via a wearable patch.
MedTech/Diagnostics - UHasselt

12. UFO Biosciences
Functional Single Cell Selection - High-throughput screening of clinically relevant cancer-driving cells
Therapeutics/Biotech - Erasmus MC

13. UPyTher BV i.o.
Setting new standards of care for peritoneal oncology
Therapeutics/Biotech - TUEindhoven

Summaries of the Pitch presentations
Pulsify Medical

Introduction of the Investment Opportunity

In September 2019, Pulsify Medical, a digital medical technology company focused on the development of wearable ultrasound patches, achieved the first closing of its series A funding round, raising € 2.6 million euro. Imec.xpand and KU Leuven led the investment together and were joined by University Hospitals Leuven. For the second-closing series A, Pulsify Medical is seeking an additional €2.4M investment by new investor(s).

The Company

Pulsify Medical develops wearable ultrasound patches for non-invasive, real time monitoring of critical physiological parameters inside the body, in particular cardiac output. As a spin-off of imec and KU Leuven, Pulsify Medical will build on the unique and IP-protected technology of both research institutes: on the one hand, imec's unique flexible ultrasound transducer technology and design know-how for transducers, thin film transistors and system architecture, and on the other hand, KU Leuven's world-class expertise in cardiac ultrasound imaging.

The Product

Patients will wear Pulsify's wearable patch on the chest for several days/weeks to enable Health Care Professionals (HCP) to continuously monitor cardiac output of patients at risk, especially patients with Cardio-Vascular Disease. The smart patch will benefit patients at risk in the ICU, in-patients in the hospitals, and patients at home. The smart patch will use state-of-the-art algorithm IP to extract cardiac output data and warn HCP and patients as needed. In the ICU, the patch will be a wired product, connected to ICU monitoring systems. Subsequently and beyond the ICU, the patch will be worn wirelessly in the hospital and at home, to enable patients to be mobile while being monitored.

Large Market Opportunity

In the EU and USA alone, we estimate that approximately 4 million patients visiting the ICU each year will benefit from continuous cardiac output monitoring, representing several billion Euro's in value. The market opportunity for in-patients, beyond the ICU, is approximately 5 times larger, near 20 million patients every year. A subset of patients visiting the hospital will benefit from subsequent Home monitoring. Beyond measuring cardiac output, longer-term this patch will also be beneficial for urology and other internal organ monitoring applications.

Differentiation versus Competition

The solutions currently in the market have substantial downsides: some are invasive and others are not suitable for long-term monitoring. So called Swan Ganz and Picco catheters are applied intravenously and/or arterially and are thus highly invasive, making these products expensive, complicated and potentially risky for the patient.

Transesophagael solutions are also invasive and typically require constant attention to keep the probe in the right position in the stomach. Regular transthoracic ultrasound solutions are not suitable for longer term monitoring and require delicate handling by a highly-trained expert.

Unlike these competitive solutions, Pulsify Medical's smart patch will be able to monitor cardiac output non-invasively, for the long-term, safe, and at lower cost. They will be easy to apply and comfortable for the patient. Puldify Medical's patch is thereby truly differentiated from competition.

Contact: mr. Iwan van Vijfeijken, CEO Pulsify Medical. Email: iwan.vanvijfeijken@pulsify-med.com

Organo Therapeutics

About us - Our new 3D brain organoid technology allows drug development in Parkinson's disease.
Founded in July 2019 by Prof. Dr. Jens Schwamborn and Dr. Javier Jarazo, the biotech company OrganoTherapeutics S.a.r.l. (OT) makes use of a proprietary human-specific 3D *in vitro* model, the so-called midbrain organoids, for the discovery and development of effective drug candidates, which target neurodegeneration in Parkinson`s disease (PD) patients. The business strategy of OT is based on two pillars: I) usage of the midbrain organoids for own drug development and II) selling of midbrain organoids as product for R&D.

Major advantages of the company are:
1) Availability of a proprietary model, the midbrain organoids, which recapitulate key features of the brain area affected by PD.
2) Accessibility to a unique library of PD-patient-derived material thanks to the collaboration with the Luxembourgish National Centre of Excellence in Research in Parkinson's disease (NCER-PD).
3) Own drug candidates have been identified, which shall be further developed into advanced lead compounds.
4) Partnership with a globally active CRO to distribute the midbrain organoids as a product.

OT competitive advantage: We use human PD patient-specific models to screen for the therapeutic efficacy of candidate compounds. Differently from classical approaches, we do not base our campaign on the identification of single molecule targets, but on phenotypic screening to identify molecules that can reverse cellular defects, which are the hallmark of PD. Additionally, we offer our midbrain organoid model as product, in order to create immediate and continues income.

Market – Potential of growing to $ 8.300 Million
Currently, 8 to 10 million people worldwide are affected by Parkinson's disease. Every year approximately 70,000 Americans are diagnosed. According to the European Parkinson's Disease Association, more than 1.2 million people in Europe are living with Parkinson's Disease. These numbers will double by 2030.
The global Parkinson's disease drugs market size was valued at USD 4.500 Million in 2018, is projected to reach USD 8.383 Million by the end of 2026, exhibiting a CAGR of 8.1%. Europe leads the global Parkinson's disease market with maximum revenue of USD 1.540 Million in 2018. However, the US will take over this position in the next five to ten years. While the market in Asia Pacific is likely to report the highest CAGR in this time frame.

Competition – OT has a unique expertise, which combines stem cell technology in the field of PD
Several companies offer tissue engineering and develop 3D organoid models (e.g. liver organoids or cancer spheroid models). Even first companies started to use the brain organoid technology (e.g. targeting Autism, Schizophrenia and Glioblastoma). However, currently no market player currently uses patient specific midbrain organoids to develop compounds against PD. OT has unique capabilities with its models and drug development approaches. Importantly, we have a **strong IP basis, with three patents** and contacts to several big pharma companies as well as specialized biotech companies have been already established.

Required investment
To further develop the initial identified compounds and to undertake the screening campaigns for further hits, we aim at an investment of 5.7 Mio € for the next five years. For the next 12 months we look for an initial investment of 500k€.

Contact details
E-Mail: Jens.Schwamborn@organo-therapeutics.com Homepage: http://organo-therapeutics.com/

Panorama Laboratories BV

Panorama Laboratories
Founded April 2019
120k funding to date - $1.2m sought per Q2 2021
www.panorama.bio - max.green@panorama.bio (Founder/technical director)

Problem
30% of all life science R&D investments (~$15b/y globally) is spent on compliance & quality assurance.

Solution
By offering the 'Panorama Suite', a smart general lab equipment suite that ties in with analysis software, Panorama Laboratories can automate most documentation and reporting in life science labs.
We do this by building modern and smart versions of tools used in the 5 most common sample preparation actions. Pipetting, centrifuging, cooling, heating and mixing. From the usage data of these tools,we can extract SOP data and generate a complete 'per sample history' that can be linked directly to lab results. This complete per sample dataset can then be used to automate rapports, compliance related documentation and research quality scores.

Benefit
1. Investment decisions in life science R&D can be data-driven and objective, instead of relying on lab journals and human interpretation.
2. The time and energy that researchers spend on writing things down and checking documentation can be spent on the research instead.
3. Time to market can be decreased by providing early warning systems for human errors in early stage research.

Roadmap
Our first product is the Panorama Beacon. This is a data acquisition device that can be clicked onto any mechanical pipette to gather all relevant pipette data from the lab. This will serve as a proof of concept for the technology, market and development costs for the rest of the Panorama Suite.
The patented Beacon technology is fully functional, and we are currently developing the technology into a user friendly and efficient product. After finishing development, we will expand the organisation to continue development of other products while bringing the Beacon to market with a supplier partner (negotiations have already been initiated regarding this with several global suppliers, of which one approached Panorama Laboratories unprompted).

Funding requirement
A total of $5.5m is required to develop the first fully functional smart lab that is ready for production. We are looking for a 1.2m investment in Q2 2021 to develop a full scale prototype with a dedicated development team over the course of 2021 and 2022.

TAM: Our proposed business model will operate with a $3.3b/y TAM with 2m users. We aim for adoption by 30.000 users in 2026 (~$100m in revenue).

NC Biomatrix BV

NC Biomatrix B.V.
GEM Z-4.115
De Rondom 70
5612 AP Eindhoven
Netherlands
Telephone +49 151 17653084
Email info@ncbiomatrix.com
Registration Nr Kamer : 74509012

Founded
April 2019

Product /Service
Injectable resorbable biomatrix to alleviate pain caused by degenerative orthopedic conditions – degenerative disc disease, knee osteoarthritis etc. – by restoring proper biomechanics in the diseased joint.

Value Proposition
First curative, out patient treatment for patients suffering from back pain due to degenerative disc disease and knee pain due to knee osteoarthritis. No surgery, no rehabilitation which provides significant advantages for the patient and reduces societal costs.

Funding
- To date 550.000€ of seed funding have been raised (loans/convertable loans) with several applications open which will be decided by mid 2020.
- Seeking 3 to 4 million in „A“ round equity financing (Q1 2021) based on early „first in man“ results

Contact
Bob Guilleaume, CEO
r.guilleaume@ncbiomatrix.com
T +49 151 17653084

PUXANO – Accelerating Drug Development

PUXANO

The Challenge

Traditionally, novel drugs are discovered by laborsome, trial-and-error procedures, which can take years with cost in the billion euro range. The most promising way to produce drugs more time- and cost efficiently is structure-based drug design. But this strategy only works if one knows the structure of the target protein. **Up to now, the full power of structure-based drug design can not be unleashed because a reliable, quick and versatile platform for high-resolution protein structure determination is missing.**

Our Solution and Wins

PUXANO developed a proprietary nano- and biotech platform for accurate, high-throughput protein structure determination. Our technology spans the full workflow, from protein production over protein purification to resolving high-resolution protein structures. **Due to this holistic approach, we can characterize proteins 10x more cost-efficient and in a 6-24x decreased time scale.** Furthermore, our PXN one-step solution, unlocks access to novel target proteins that were previously inaccessible. **This enables us to design tailor-made drugs with improved therapeutic effects.**

Our Business Concept

PUXANO runs a dual business model based on high-throughput pipelines for protein structure determination: (i) protein R&D pipeline acceleration for industrial partners and (ii) internal drug development pipelines focusing on a specific class of uncharacterized proteins. **With our activities we will target protein-related markets including pharmaceutics, food, chemistry and energy sector.** We thereby perfectly align with the global structural biology & molecular modelling techniques market that accounted for USD 2.52 billion in 2015 and is expected to grow at a CAGR of 18.2% over the coming years.

VENTURE DETAILS

- Venture Team (3)
- Acquired Funding (€550K)
- Required Funding for 3 years (€4M)
- Starting Date (Q1/Q2 2021)
- First Clients (3 leads)
- IP (1 patent pending + 2 in preparation)
- Contact: wouter.vanputte@puxano.com

BIMINI Biotech BV

- Founding date : 23 September 2019
- Equity funding to date: n.a.
- Short description of product/service including value proposition:

  Bimini Biotech is an innovative spin-off from the University Medical Centrum Utrecht working on oncology therapeutics, relying on over 30 years of research performed in the group of Prof. Ger Strous. Our breakthrough discovery has the potential to, for the first time, effectively leverage the GH/IGF-1 axis for novel cancer therapeutics. In a high throughput screening campaign using novel functional assays, we have identified several small molecules that effectively deplete cells from GH signalling activity and lead to consistently low serum IGF-1 levels in mice, thus producing a pronounced anti-cancer effect.

  Specifically, results of our lead compound BM001 are extremely promising for triple negative breast cancer (TNBC) and colon cancer, both in vitro and in vivo. Administration of BM001 in TNBC organoids shows depletion of GH signalling and cell surface expression, and cell viability assays with TNBC and colon cancer cell lines deliver IC50 in the range of 30-50 nM. Moreover, BM001 completely reduces xenografted TNBC tumours in mouse models and has a positive safety profile in a beagle dog. Based on these results, we have recently filed for a patent and now aim to progress our compound towards late preclinical and clinical studies.

  The first showcase for BIMINI's novel approach will be in TNBC, which accounts for 10–20% of all cases of breast carcinoma, affects over 170,000 women every year globally, and is usually diagnosed in the younger female population, under the age of 50. Currently, no approved targeted therapy for TNBC is available in clinical practice, and an examination of ongoing trials reveals that all tested therapies including PARP inhibitors and immunotherapies afford very poor overall response rates (20-50%), with a mean increase in progression free survival by 1-2 months. Thus, identification of novel molecular targets and therapeutic approaches for the treatment of TNBC represents a great unmet clinical need.

  Bimini aims to tackle the strong socioeconomic need in TNBC, by delivering proprietary small molecules with a novel mode of action, as compared to currently available therapies that have poor overall response rates. This approach has the potential to afford a more efficacious and cost-effective solution for TNBC treatment, thereby saving lives and reducing treatment costs considerably. We aim to bring our compounds to phase IIb clinical trials in co-development with a strategic licensing partner active in the TNBC market (Merck, Roche, Pfizer etc). The preceding steps including late preclinical studies and phase-I/IIa trials will be done using own financing (dilutive and non-dilutive). Following the results of phase IIb studies, we aim to steer the pipeline towards a licensing deal by the pharma partner. The end-users of the technology will be TNBC patients, who are in dire need of novel and efficacious therapeutic options.

- Amount of funding sought: Seed financing - €1-2 M; The goal of seed financing is to reach the first value inflection point towards CTA filing by performing: 1. MoA validation (Ribosomal profiling, Cryo-EM experiments, Proteomics), 2. In vitro cell viability assays on large cancer cell line panels, 3. Revalidating in-vivo efficacy with an expert CRO for TNBC and other cancers in PDX and syngeneic models, 4. In-vivo PK studies, 5. In-vitro ADME and safety profiling, 6. Exploratory toxicology and GLP toxicology studies, 7. Further lead optimization, 8. Collaboration with expert partners to prepare for the human phase.

- Contact details:
  Digvijay.gahtory@biminibiotech.nl (+31617723268)
  maurits.vandennieuwboer@biminibiotech.nl (+31628168725)

ECsens

Founding date: 28th November 2019

Equity funding to date: No equity funding has yet been sought for, however, different subsidies for a total of €260K have been secured in 2019. Proposals for more subsidies are being prepared.

Amount of funding sought: €3M (Technology development & pre-clinical/clinical trials)

Contact details: Dr. Dilu Mathew| CEO| dilu.mathew@ecsens.com

Short description of product / service including value proposition:
According to the World Health Organization, a staggering 9.6 million deaths and 18.1 million new cases were reported worldwide in 2018 due to cancer. Traditionally, patient care is given by physicians based on pathological examination, symptoms of the disease, and history of medications. However, there are cancer markers, available in body fluids like blood if detected accurately and early, that can help oncologist to plan (individual specific) personalized treatment. Nonetheless, conventional *in vitro* diagnostic tests lack in sensitivity and selectivity thus lacking in accuracy and reliability. Furthermore, they are time consuming and labor intensive. Also they require centralized laboratories and experienced personnel resulting in tests with high cost and thus cannot be performed frequently. However, frequent tests are essential in order to monitor the treatment efficacy during the treatment. The solution could be our patent-pending lab-on-a-chip nanotechnology based sensor that can detect cancer biomarkers in blood facilitating faster, easier, cheaper, accurate and reliable diagnosis.

Unique features of our sensor:
- Digitalized sensing (detection of biomarkers one by one)
- Extremely sensitive (thereby minimizing the chances of false negatives: more accurate)
- Ability to distinguish between false and true positive detection events (thus more reliable)
- Label-free and real-time measurements (prerequisites for point-of-care detection)
- Very fast measurements (results can be obtained in less than an hour)
- Multiplexed analyses of different biomarkers

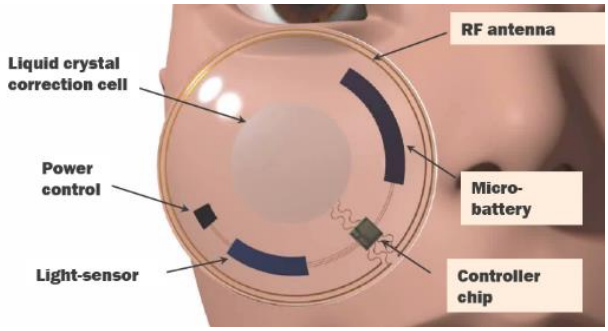
Value propositions:
- Helps oncologist to select precision/ personalized treatment for patients
- Facilitates in analyzing treatment effectiveness and assists in making a prognosis
- Less expensive test helping more frequent screening of the patients (weekly or biweekly)
- Uses non-invasive painless sample (blood) collection method

ECsens: Winners of Dutch 4TU impact Challenge (https://4tuimpactchallenge.nl/), Winners of University of Twente UT challenge (https://2019.utchallenge.nl/).

Promo video: https://vimeo.com/386491803/0e41523d5f

Azalea Vision

Venture description



Our smart contact lens with an active artificial iris (image on the right) helps patients with iris disorders and photophobia (high sensitivity to light) by improving their vision (higher sharpness and better contrast) in an autonomous and discrete manner. This is done by electrically commanding liquid crystal cells between a transparent state (OFF) and an opaque state (ON). The change in pupil size induces two simultaneous positive effects: 1) increases the sharpness of vision (higher depth-of-field (DoF), a smaller aperture leads higher DoF like in a camera) and 2) reduces the amount of light entering the eye thus helping patients with their photophobia condition.

The Azalea solution encompasses several unique propositions, such as: automatic light control and adaptable DoF based on the ambient lighting, discrete implementation to improve the social aspect of the patients, full autonomy and wirelessly rechargeable nature. In addition to mimicking the dynamic function of a healthy iris, our solution outperforms conventional static correction lenses.
The core team is currently composed of Andrés Vásquez Quintero PhD (experienced in stretchable electronics and medical wearable devices), Peter Vermeulen MBA (experienced in optometry and the contact lens industry), Vincent Qin MD, MBA (experienced in ophthalmology and healthcare business). Sudha Sudha PhD (experience in microfabrication). The team is being completed by hiring of new colleagues at management positions.
This initiative is a joined effort between IMEC and Ghent University in Belgium.

Founding date

Azalea Vision is expected to be founded by Q2 2020.

Equity founding to date

Azalea Vision has not equity founding to date.

Amount of funding sought

Azalea Vision is seeking for 6 million Euros for the seed phase (including public funding).

Contact information

Andrés Vásquez Quintero and Enrique Vega
Email: andres@azaleavision.com, enrique@azaleavision.com

VitroScan BV

INVESTMENT OPPORTUNITY

Diagnostics to predict treatment outcome for cancer patients

~

Founding: **Sept 2016**

Number of employees: **3 +**

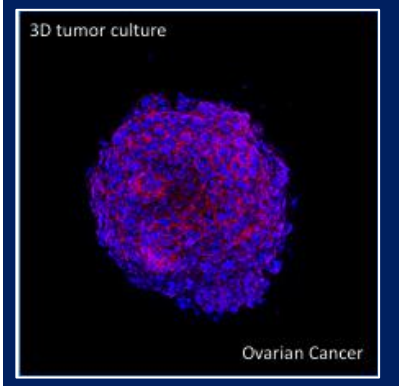
Equity funding to date: ***1,3M***

Investment opportunity: **€2-5M**

Use of Proceeds: **Validation PoC, proof of clinical utility, analytical performance, market introduction.**

Management:
Willemijn Vader, Managing Director

Board:
Leo Price, CEO OcellO
Pieter Geelen, Co-founder TOMTOM
Rob Mayfield, Head Luris (TTO)



Contact Information:
Willemijn Vader
VitroScan
www.vitroscan.nl
willemijn.vader@vitroscan.nl
Leiden, The Netherlands
+31653923185

BUSINESS SUMMARY

VitroScan develops diagnostics to predict drug efficacy and revolutionize treatment benefit for cancer patients.

NEED /OPPORTUNITY

Due to a lack of predictive tests, response rates for cancer drug treatment are often low (<50%), and patient selection for clinical trials is poor.

- Millions of cancer patients are treated with ineffective drugs or miss out on potentially effective drugs.
- The failure rate of new drugs in clinical trials is high, especially in oncology.
- Expensive drugs are an increasing burden on hospital budgets and wasted if patients do not benefit from it.

SOLUTION

Predictive tests for clinical development and diagnostics. The ex vivo 3D tumor culture platform is unique, scalable, and allows testing of all (solid) tumor types.

COMPETITORS	*HOW ARE WE BETTER*
Pathologists	Deliver additional predictive information
SEngine	Advanced functional testing based on an automated and high throughput platform to produce test reports in weeks
Mitra Biotech	Multiparametric read out to quantify drug sensitivity

MILESTONES

- Exclusive license OcellO technology (2016)
- Successful ex vivo tumor testing for 6+ cancer types
- Two ongoing Proof of Concept trials in collaboration with 3 academic hospitals, plus 10+ regional hospitals
- Seed funding round of €800k closed (April 2019)
- Patient specific immune drug sensitivity (2019)
- Two patents filed (Oct 2019)

GO-TO MARKET AND REVENUE MODEL

- Licensing patient tumor tissue to third parties (OcellO)
- Testing investigational drugs in ongoing trials (drug developers)
- Patient stratification for clinical trials (drug developers)
- Predictive diagnostics (clinic, health care insurance companies)

Development is performed in close collaboration with the end user, medical oncologist and pharma companies. Diagnostics will be CE marked and reimbursed.

Short summaries of **Quickfire session** initiatives

Cenya, Measuring biodistribution of cell therapies in humans

Cenya is addressing cell therapy developers' needs to measure the biodistribution of cell therapies in animals and humans, as part of their development programs. To do this, Cenya is developing a proprietary, clinical stage imaging agent (BEACON) that can label cell therapies ex vivo and track them in vivo over extended periods of time using one or more of MRI, PET, SPECT, Photoacoustic Imaging and ultrasound. To date, BEACONs are approved for use in a dendritic cell clinical trial in the Netherlands, and Cenya has received funding from a number of organizations, including sponsorship from 2 of the top 5 pharma companies to test BEACONs in CAR-T cells. Furthermore, Cenya is in discussions with regulatory authorities to define the regulatory path for use of BEACONs to track any cell type in humans. Cenya intends to further develop BEACONs for use in broader diagnostic imaging applications, leveraging its regulatory data derived from tracking of cell therapies.
Although Cenya is not in immediate need of investment, it is seeking potential investors that have strong networks in the cell therapy field, and in the broader imaging field, and who can add extra value to the business.
Contact: jsimon@cenyaimaging.com, msrinivas@cenyaimaging.com

GenoMask, Early stage filtering and masking for genomic information protection

The GenoMask box implements a GDPR compliant early-stage separation of the identifiable parts of genomic information (DNA) from the common parts. This separation allows a finegrained protection of the sensitive and personal genomic information, and privacy-preserving methods.
The GenoMask box first identifies the sensitive sequences in the reads (short strings) that are produced by the sequencing machines. After the sensitive sections of reads have been identified, they can be masked out in a sanitized version of the reads, which become anonymous and can therefore leave the box to be processed. This mechanism combines the best of two worlds: the high performance of current unsecure plaintext processing, and the privacy protection of heavier cryptographic techniques.
We have demonstrated that the processing of raw genomic data with our methods can be performed with few modifications, in a hybrid system where an untrusted environment (e.g., a public cloud) is used to process the insensitive information with high-performance, and a trusted environment (e.g., local machines, private clouds) refines the results by reincluding the sensitive information. It is important to note that no data is ever lost by using our product, and that it is fully backward compatible (it can be partially included in the current processing pipelines without disrupting the service).
We have defined several possible flavours of our product, but all versions are easy to use for the customer, for example using a plug-and-play approach to connect it to sequencing machines and orchestrate the processing of genomic data.
Contact: jeremie.decouchant@uni.lu, jacek.plucinski@uni.lu

HeartKinetics

HeartKinetics aims at revolutionizing the existing model of cardiac chronic disease management. We offer the Kinocardiograph (Kino): a connected wearable non-invasive monitoring solution. Kino is a combination of a comfortable and extremely easy to operate device for assessing rhythm via a standard electrocardiogram, and cardiac strength and hemodynamic measured through a patented (PCT-EU phase starting in 2020) technique based on accelerometers and gyroscopes. The device is piloted by a smart-app and securely connected to our cloud data analytics and machine learning algorithms. In only two minutes per day, the patient will be connected to the care team which can access data with clinical relevance that would take half a day of visit at the hospital.
Patients are asked a few questions and our system will learn to recognize well in advance the signs of cardiac condition worsening and will prevent costly and numerous rehospitalizations. Our key differentiation factor, from other remote chronic heart failure management, resides in the exclusive and patented solution that provides clinically relevant data closely related to parameters usually gathered with an echocardiography or a cardiac MRI, requiring trained operator and expensive and bulky machines. Our solution can be deployed at the home of the patient as well as a point of care in-hospital solution that can be operated by a nurse.

We are at the stage of a proof-of-concept close to be put on the app marketplace however, we would need CE medical mark after long and costly clinical trials.
The Kino received the 1st Prize of innovation at the European Society of Cardiology – EHRA meeting (June 2017) and was among the last 3 finalists of the ESC digital Summit (October 2019).
Contact: arnaud.quintens@ulb.be, Pierre-francois@heartkinetics.com

Levels Diagnostics

Levels Diagnostics is developing a test to differentiate a viral from a respiratory tract infection. This will aid physicians in selecting the optimal treatment pathway and to guide further diagnostics options. The added value of this type of diagnostics is in time savings of the physician, reduction in more expensive diagnostics (x-ray, PCR etc.) and lastly in the reduction of burden of misused antibiotics.
The unique aspect of the approach of Levels is the search for novel biomarkers on active immune cells. Levels Diagnostics has finished a first clinical trial in healthy volunteers to evaluate the core assumptions. Currently, Levels is running a clinical trial in patients in two large hospitals to evaluate the performance of a large set of biomarkers.
Contact: coen@levels.bio, blandine@levels.bio

LiveDrop - a revolution in droplet-based microfluidics for single-cell applications

Microfluidics and single-cell markets have been experiencing more than 15% annual growth for the last decade, becoming increasingly popular in the realm of life science for identifying unique properties of cells. Nevertheless, a robust, efficient and versatile tool to manipulate cells at the level of single units is still missing.
LiveDrop develops a cutting-edge technology (patented) based on droplet microfluidics that precisely solves this challenge. Individual cells are encapsulated in droplets, then detected, sorted and manipulated at will. The main advantages are the preservation of cell viability, a high level of automation and a high throughput (~1M cells per day).
LiveDrop's key activities are the design and fabrication of consumable microfluidic chips and the instrument to interface them. The technology has been validated successfully in applications that involve human and animal cell lines, bacteria, blood plasma, and enzymatic substrates.
We plan to focus on the detection of serious diseases thanks to the identification of rare cells (e.g. CTC's), and on the discovery of new drugs. Organ-on-chip applications are also considered.
Our team has 10 years of experience in microfluidics. We are looking for seed-investment for company creation by Q1 2021.
Contact: svanloo@uliege.be, o.gillieaux@uliege.be

Nium SARL - FHM Change initiative

Nium, a spin-off of the University of Luxembourg, is developing a solution that provides easy to follow dietary guidance by analyzing each individual's metabolism, gut-health, and lifestyle.
At the core of this approach is the use of metabolic models to integrate gut-microbiome and metabolic markers for the prediction of individual response to foods and diets. Nium currently supports agri-food companies better understand the metabolic impact of their products, guiding the design of healthier alternatives. In this context, Nium has recently closed a pilot deal with a multinational company in the food sector. The next phase is deploying a consumer product for nutritional guidance for retail customers. The proposed meal plans will be composed of healthy recipes and shopping lists mapped to local supermarkets, making healthy-living practical and convenient. A connection with partner laboratories will allow consumers to schedule and perform metabolic tests to further personalize the recommendations in the most convenient manner.
To achieve its goals, Nium has initiated collaborations at local and regional levels such as with the University of Liège and Université Catholique de Louvain / Clinique Universitaire Saint-Luc. With the right partners and funding support, we will be able to deploy and scale our offers in the greater region and prepare broader international expansion.
Contact: alberto@nium.io, silvia.colucci@uni.lu

PDE4D, a novel target in remyelination

Progressive multiple sclerosis (pMS) is a devastating neurological disorder that occurs in more than one million people worldwide and is mostly characterized by muscle weakness and cognitive impairment. The direct and indirect costs that are associated with MS are estimated at 32.791 euros per patient per year. For progressive MS, especially the indirect costs are even higher, as pMS is characterized by a high rate of unemployment. To date, no treatment for pMS has been developed, creating a large unmet medical need. Our research group discovered that inhibition of PDE4D can, at least partially, reverse pMS pathology without inducing the side-effects that are reported for full PDE4 inhibitors. This is a considerable opportunity in the MS field. Given the novelty of this finding and the market potential, we filed a patent application for the use of PDE4D inhibitors in demyelinating disorders (PCT WO2019/193091). We have convincing *in vitro* and *in vivo* data for our lead compound, bringing the status to lead optimization. Towards the setup of a spin off we thus have two spearhead strategies: 1) Development of a first in man trial with lead program and 2) Directed development a new pipeline program for new hits.

Contact: tim.vanmierlo@uhasselt.be, An.voets@uhasselt.be

Persuasive

Challenge

Chest pain (angina) is a very common and the reason for 4% of all GP visits. Since stable cardiac disease or stable angina (SA) could be the underlying cause, patients are now referred to hospital for assessment. After expensive imaging, however, >80% of patients turn out to not have stable cardiac disease. A diagnostic blood test to correctly identify SA in chest-pain patients is lacking.

Opportunity

Cardiac diseases affect over 36 million patients globally every year and is the leading cause of death worldwide especially in Asia and Middle East. A diagnostic test for SA could generate revenues of over 72 million by 2026.

Solution

Researchers of the UMC Utrecht (UMCU) have developed and patented a simple blood test, based on an extracellular vesicle protein signature, to identify SA in chest pain patients.

Status

The current blood test can identify female patients with stable cardiac disease and male protein signatures are currently being validated. Simplification/automation of the testing process is ongoing to make the test compatible with clinical diagnostic workflows.

Call to action

The company has received its first funding and is now looking for ~ 1M to fund further technology development and validation.

Contact: dkleijn@umcutrecht.nl, egbert.smit@nlc.health

Predica Diagnostics B.V

Predica Diagnostics B.V. is active in the field of diagnostics, prognostics and prediction of treatment response in oncology and is a spin-off from the Radboudumc. Cervical cancer is the third most common malignancy in women and fourth in mortality worldwide with 500,000 new cases and 250,000 deaths yearly.

The CervicaDX assay, will be developed and marketed to non-invasively assess the risk to develop cervical cancer and to guide proper treatment. The ciRNAseq technology of Predica Diagnostics BV is protected by a patent “RNA profiling for individualized diet and treatment advice” with number PCT/EP2018/055548 filed on March 7, 2017.

Predica Diagnostics aims to bring its proprietary technology to patients in 1 to 2 years with a focus on developing the high-throughput CervicaDX test for cervical scrapes. In the next step of development, the CervicaDX assay will be expanded into a CervicaTissueDX assay for testing of tumour tissue, to guide treatment of advanced cancer patients.

Our technology is also of interest in other oncological indications, and Predica Diagnostics will set up “paid” collaborations or sublicensing possibilities for development and application of ciRNAseq technology in other oncology fields such as brain, blood, prostate, colon, lung and renal cancer.

Contacts: Marco@sopconsultancy.com, William.Leenders@Radboudumc.nl

Taurion - Hunting Fluorescence Lifetime

Fluorescence-guided surgery (FGS) has already proven to improve patient care by giving a surgeon real-time view of blood flow by fluorescent dyes and detecting sentinel Lymph nodes. The problem is that auto- or non-specific fluorescence is influencing the sensitivity of the imaging of spectral cameras, providing insufficient contrast of the near-infrared (NIR) dye and/or emerging fluorescent tracers between the normal and the targeted tissue (e.g. tumor). The solution is simple, use another characteristic of fluorescence, the fluorescence lifetime (FLT) of fluorophores to enhance the differences.
Our CAPS image sensors and cameras we are building from the ground up for the challenges of FGS and are the key to enabling real-time FLT imaging by virtue of high NIR quantum efficiency and high-speed time-gating and are a leap improvement from the existing NIR camera technology.
Assisting surgeons in e.g. a better tumor re-sectioning, will contribute to the progress of the treatment of cancer patients.
We are currently continuing our core technology development and we are building a minimum viable product for pre-clinical imaging. We are investigating the funding options to develop the technology to a certified clinical system with the highest resolution and sensitivity.
Contact: hingelbe@etrovub.be, rvanheij@etrovub.be

Tumenscence Wearable App (TUWA)

We introduce a new measurement technique to monitor the penile tumescence and rigidity in a more comfortable way via a wearable patch. It is a user friendly, easy-to-use sensor patch which monitors both the radial and axial rigidity of the penis during NPT. It tackles the problems of the current technology and introduces new possibilities like measuring the speed at which an erection occurs. Furthermore the new proposed device will provide continuous data instead of discrete measured data points which possibility give insight in more information about the erectile tumescence.
Contact: Lieve.dedoncker@uhasselt.be, steven.vanhoof@uhasselt.be

UFO Biosciences – Functional Single Cell Selection

Global Challenge: 50% of cancer patients still die, due to incomplete eradication of heterogeneous tumors. Existence of rare, aggressive, cancer-driving cells causes therapy resistance and treatment failure. Current technology fails to accurately identify, isolate and profile these rare cells, thereby severely hampering development of effective cancer treatments.
Solution: our patented technology FUNsice (functional single cell selection) allows automated, high-throughput selection of specific single cells exhibiting dynamic cancer-driving phenotypes.
With FUNsice, we can select specific single cells of interest in 2D and 3D samples based on any characteristics, e.g. abnormal cell division. **Our value proposition** is identification, selection and isolation of clinically relevant single cells, which can be directly profiled with single cell sequencing to identify otherwise missed genetic or transcriptomic signatures.
Our technology is at TRL4-5: We demonstrated robustness and successful identification, selection and profiling of rare cells in different 2D/3D samples. Further validation is ongoing with other academic researchers. Proof-of-Concept studies demonstrating successful identification of variant genes from clinical samples - at higher resolution compared to conventional methods - are ongoing.
Viable business opportunities:

- Services offering for research community: underlying mechanisms of clinically-relevant cancer-driving cells and therapy resistance. We will accumulate ample genetic or transcriptomic profiles of cancer-driving cells. This library will be of tremendous interest to identify druggable genes and biomarkers, particularly to overcome therapy resistance.
- Sales of collected data to pharmaceutical companies, who are seeking new targets and biomarkers for clinical development.
- NewCo with proprietary drug development for therapeutic targets identified in the data library.

Contact: m.p.chien@erasmusmc.nl, d.vissers@erasmusmc.nl

UPyTher BV i.o.

UPyTher is a biopharmaceutical company committed to advance intraperitoneal drug therapy and set new standards of care in peritoneal oncology and beyond.
Peritoneal cancer is commonly observed as the result of distant metastases from a primary colorectal, ovarian, gastric or pancreatic cancer and has as survival prognosis of only 2-6 months. The majority (>75%) of patients is considered untreatable and condemned to palliative chemotherapy, with minimal effect because systemically administered drugs fail to reach the peritoneal cavity sufficiently. Alternatively, a combination of aggressive cytoreductive surgery (CRS) with a single flush of high dosed hyperthermic intraperitoneal chemotherapy (HIPEC) is offered to selected patients (<20%), but has a high cancer recurrence rate (~80%) within the first two years.
To improve treatment outcomes physicians demand prolonged on-site drug exposure times, with limited systemic toxicity.
UPyTher's chemogel is based on proprietary polymer technology and is tailor-made for effective delivery of drugs to the peritoneal cavity. Unlike existing hydrogels, our chemogel offers maximal peritoneal surface coverage and extends local drug exposure to days instead of hours, resulting in radically improved efficacy of intraperitoneal therapy.
We currently evaluate preclinical safety and feasibility of our hydrogel for intraperitoneal administration in rodents and looking for non-dilutive pre-seed funding.
Contact: G.C.v.Almen@tue.nl, f.m.v.d.ven@tue.nl

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For additional information please contact:

Claar-els van Delft
Tel +31 (0)6 2848 0549
claar-els@hihr.eu
www.hihr.eu