

# lifesciences @work

Health~Holland



Expert Class . Negotiating & Licensing

5 July 2019 . UMCU

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# Startup Profiles

# Cyclomics

Cyclomics invented a technology to measure cancer recurrence in liquid biopsies (blood). Cyclomics technology enables sequencing of single circulating tumor DNA molecules at near 100% accuracy. This is accomplished by a proprietary three-step process consisting of capturing, copying and concatenation of the original double-stranded ctDNA molecules. The resulting DNA products can be sequenced using portable single-molecule sequencing instrument (e.g. nanopore MinION). In addition, Cyclomics has developed a software package to perform detection and reporting of cancer mutations in the ctDNA sample based on a proprietary consensus calling algorithm. Cyclomics technology offers detection of cancer mutations in blood at single-molecule sensitivity, which is not reached by any other liquid biopsy test on the market. Moreover, Cyclomics offers a comprehensive test as it can detect mutations in complete genes or gene panels, ensuring secondary tumors or newly emerging tumor clones are not missed. Cyclomics is a first cancer diagnostic test that can be combined with portable third-generation sequencing, providing low-cost access to any diagnostic laboratory worldwide.

- Venture Challenge Fall 2017 Alumnus and Winner.
- NWO Take Off 1.

# Exovectory

ExoVectory offers a platform technology to produce large DNA constructs tightly packaged into naturally secreted human exosomes. Exosomes are small (~100nm) lipid vesicles that are secreted by cells. Their biological purpose is intercellular communication by transferring RNA and proteins from one cell to the other. Over the past decade, exosomes have gained interest as therapeutic carriers, both being able to carry a therapeutic load and having regenerative capabilities of their own. Until now loading exosomes with therapeutically relevant DNA constructs was not possible. ExoVectory's products can carry transgenes with sizes of up to 25kb in total and are invisible to the immune system. The Exovectory platform is compatible with allogenic, "off-the-shelf" therapies, but can also be implemented in personalized, autologous, approaches. Its product allows for systemic administration of gene therapy, as well as multiple rounds of treatment without adverse immune responses. In addition, due to increased bioavailability and the exosome's natural travel patterns, ExoVectory's product can penetrate deep into tissues and has the capability to reach and destroy metastasized and migrated tumor cells, making them perfect delivery vehicles. We identified two major routes of administration.

- Venture Challenge Fall 2018 Alumni

# IOVA

IOVA is the biopharmaceutical product: MICROLYSE. MICROLYSE enzymatically breaks down blood clots in small blood vessels (i.e. the microvasculature), for which to date, no specific treatment exists. IOVA pursues to receive market authorization for an orphan disease named Thrombotic Thrombocytopenic Purpura (TTP) that is characterized by life threatening attacks of microvascular thrombosis. However, MICROLYSE has the capacity to target all forms of microvascular thrombosis and could also be applied in early-stage macrovascular thrombosis as seen in heart attacks and stroke. IOVA is determined to change the future of microvascular thrombosis.

- Venture Challenge Fall 2018 Alumnus.

# Logick Energetics

Logic Energetics i.o. is developing a new therapeutic for the transfer of white fat into brown fat. This shall enable obese patients to faster transfer overweight into consumable energy which can be deployed in e.g. exercising.

The technology has been tested on in-vivo lab-scale experiments and a patent application has been filed. Target of the start-up is to raise money for starting asap with pre-clinical testing.

# NeoStartTrack

Being born is the most challenging event mankind will experience. 10% of newborns do not breathe. Because of oxygen shortage 7% of this group will face disability for the rest of the life and 7% will die. NeoStartTrack will save lives and costs for society. Professional support in the first 5 minutes of life is crucial to avoid oxygen shortage. Technically it is complicated to provide adequate ventilation. No adequate feedback on actions is available with conventional equipment. Guidelines prescribe, in addition to a conventional stethoscope, to use oxygen saturation bands and ECG patches to obtain objective and numeric information about ventilation and heart rate. It takes on average 90 seconds to get a reliable signal from ECG measurement at newborns. Oxygen saturation is not a valuable parameter in the first 10 minutes. These devices do not give feedback on ventilation efforts, while this is key to improve oxygenation.

NeoStartTrack is an innovative medical device that will give instant feedback on ventilation effectiveness and heart rate range. This enables direct and adequate adaptation of treatment. Due to smart sensor technology supported with state-of-the-art algorithms, NeoStartTrack provides an instant and reliable signal on ventilation and heart frequency.

- Venture Challenge Fall 2018 Alumnus

# Ntrans

NTrans Technologies was founded in 2015 based on a proprietary platform technology for the intracellular delivery of bioactive molecules developed at the Hubrecht Institute of the Royal Netherlands Academy of Sciences. The iTOP intracellular delivery technology is based on a combination of small molecule compounds which forces the uptake of large gulps of extracellular fluid (containing the bioactive molecules) by the cell (D'Astolfo et al. 2015, Cell 161: 674-690). Once inside, the vesicles release their content into the cytoplasm, where the bioactive molecules (like gene editing systems) can exert their therapeutic action. Our goal is to further support distribution and commercialization of the iTOP technology for the research community and to develop a therapeutic platform for iTOP based delivery of bioactive molecules. The NTrans mission is to translate the unique iTOP technology into revolutionary new therapies for the treatment of genetic diseases and cancer.

## Sagacity

Sagacity is focused on developing drugs for the prevention of Alzheimer's Disease. This requires a safe drug that gets to the brain and is of low burden to patients in terms of both cost and application. In our primary drug development program, small molecules blocking Tau aggregation will be optimized to lead stage. Upon development of our lead compounds, we will enter pre-clinical development, becoming investor-ready for more significant funding to complete Phase I/II studies in healthy persons at high risk of AD, as defined by biomarkers. Using a proprietary assay to screen the J&J compound library, we have obtained first-line hits, giving us the green light to proceed with our large-scale screen. At this time, we are working with J&J to spin out this early phase program, that will serve as the cornerstone of our portfolio. In the primary drug development program for Tau aggregation inhibitors, compounds will be optimized to lead stage. Upon selection of the lead compounds, Sagacity will enter pre-clinical development.

- Venture Challenge Spring 2018 Alumnus
- VU Alumnus Webit Festival 2018
- Finance for Pharma Growth course Fall 2017
- BioBusiness Summer School 2016 Alumnus
- Founder's Games Alumnus

## Single Cell Discoveries

Single Cell Discoveries was founded as a spin off-from the KNAWs Hubrecht Institute. Both founders have extensive experience with single-cell sequencing, as they were both previously employed at the institute. Judith managed the single-cell facility and Mauro worked as a PhD researcher at the Van Oudenaarden group. Both founders have collaborated with scientists from different backgrounds to set up and analyse single-cell sequencing experiments.

When noticing the difficulties many researchers have with setting up single-cell sequencing experiments, they decided to join forces and incorporate Single Cell Discoveries.

Single Cell Discoveries is a one-stop-shop for single-cell sequencing as a service and is supported by the Hubrecht Institute and the Oncode Institute.

## UFO Biosciences

Targeting the cells that matter, enabling better cancer care: The Challenge Despite decades of research and billions spent, 50% of cancer patients still die, due to incomplete eradication of heterogeneous tumors. In particular the existence of rare, aggressive, cancer-driving cells causes therapy resistance and treatment failure.

Current technology fails to accurately identify and isolate these rare cells, thereby severely hampering development of effective cancer treatments.

The Solution UFO Biosciences offers its patented key enabling technology FUNsice for automated, high throughput selection of specific single cells exhibiting dynamic cancer-driving phenotypes. FUNsice can process 3D samples and allows high-resolution analysis of true single cells, altogether differentiating us from currently available technology. By identifying, selecting and isolating single cells, UFO Biosciences enables the identification of the important genes that are missed with current technology.

- Venture Challenge Spring 2019 Alumnus

## X-Heal Diagnostics

The ambition of X-Heal Diagnostics is to improve lung health through fast, specific and non-invasive diagnosis of lung infections in different patient groups including chronic obstructive pulmonary disease (COPD), cystic fibrosis (CF) and tuberculosis patients.

Chronic Obstructive Pulmonary Disease (COPD) is a chronic respiratory condition affecting 380 million patients worldwide leading to severe morbidity and mortality. These patients are vulnerable for recurrent infection of the airways leading to exacerbations or lung attacks, characterized by severe shortness of breath and irreversible lung damage. These lung attacks decrease the quality of life significantly and could ultimately lead to death. Therefore, prevention or shortening the lung attacks is pivotal to maintain the quality of life for COPD patients, for which early diagnosis of infection is required. Current diagnostic methods take 2 to 3 days, while the patient requires treatment within hours upon arrival in the hospital. As a consequence most patients are treated empirically with broad spectrum antibiotics.

- Venture Challenge Spring 2017 Alumnus and Winner.



Thank You !

UTRECHT  
HOLDINGS

Cristal  
Therapeutics



UMC Utrecht

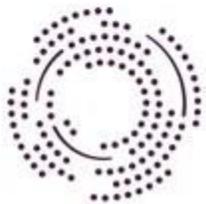
GENDX

LOYENS & LOEFF



PROGRESS  
executive services

science  
affairs



Oncode  
Institute

Erasmus MC  
Universitair Medisch Centrum Rotterdam

INNOVATION  
EXCHANGE  
AMSTERDAM



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