

***m*ibiton**

MIBITON INVESTMENTS



2022

Welcome to the new Mibiton brochure. If you're looking for financing for life sciences equipment in the Netherlands, you've come to the right place. This brochure contains all the information you need, as well as a couple of interviews and an overview of all of our investments over the past 27 years. We are working together with other investors more and more. The biggest difference between us and other investors is that we do not take a share of the investments. We provide credit and ask for an interest according to market rates. We work by the adage 'the benefit of the doubt'. We also actively think alongside the companies we are financing and – very important – we make decisions quickly. We have been doing all this successfully for many years, and we'll continue to do so. This makes Mibiton unique in the world of investment in the Netherlands. In short, if you are a start-up in need of equipment, be it big or small, for in-house production or general lab equipment, come to us and sign up via our renewed website (www.mibiton.nl). We are here for you!

Colja Laane (Chairman)



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MIBITON, INVESTING IN INNOVATIVE

110 MIBITON FACILITIES IN THE NETHERLANDS

The Mibiton foundation (Material Infrastructure Biotechnology Netherlands) was founded in 1994 to stimulate the use of innovative equipment and facilities in the field of the Life Sciences. One hundred ten facilities founded between 1994 and 2021 were financed by Mibiton. The total investment has been € 35.6 million, of which € 28.2 million has been revolved. The programmes of Mibiton were specifically developed to meet the market's requirements. These programmes focus on the stimulation of public-private collaborations (Mibiton), the foundation of spin-outs from research organizations (BioPartner)

and the development of young companies (Solo programme).

The Mibiton Share fund, focusing on Life Sciences development- and production facilities for SMEs, has been operational since 2005. Investments are structured as user arrangements. The Mibiton Science Fund (2010) focuses on investing in young spin-off companies, which share the equipment with the Research Organisation. The Mibiton organization consists of the Management Team and the 6-membered Board with representatives from the scientific, industrial and financial community. The Ministry of Economic Affairs and Climate Policy has been co-financing Mibiton until 2019.

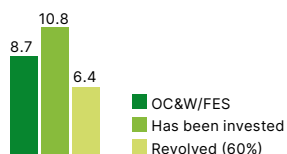
MIBITON 1994 – 2021, EVOLUTION OF INVESTMENTS IN LIFE SCIENCES FACILITIES AND EQUIPMENT.

€ 35.6 million has been invested in 110 Life Sciences facilities.

€ 28.2 million revolved and reinvested.

1. MIBITON

Public-private sharing of facilities
> 26 investments. (€ 10.8 million for soft loans)



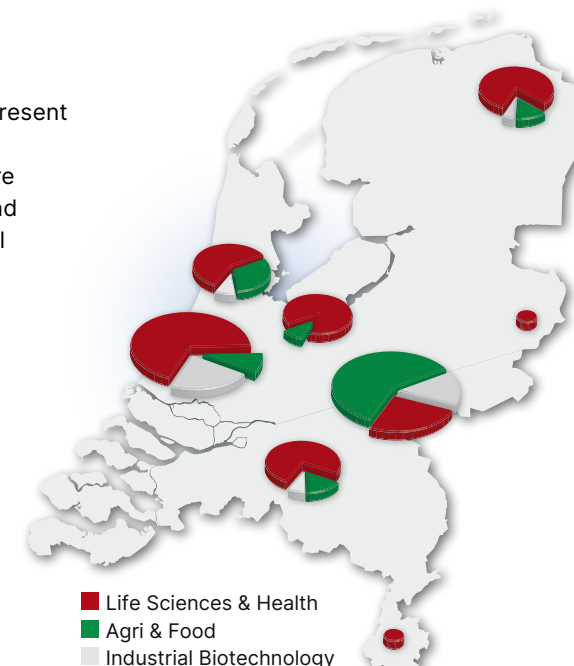
2. BIOPARTNER

Sharing of facilities between start-up companies and academic centres
> 11 investments. (€ 3.7 million for soft loans)



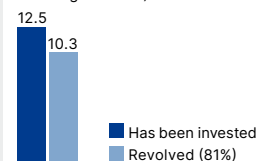
DUTCH LIFE SCIENCES FACILITIES

Regional spread of the 110 Mibiton investments in the Netherlands represent a total investment of € 35.6 million. For each region, the investments are specified in medical - (red), agro and food related - (green) and industrial (white) Life Sciences facilities.



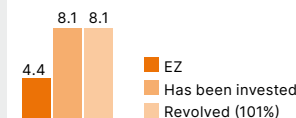
3. SOLO

Equipment for young Life Sciences companies
> 54 investments. (€ 12.5 million for rental agreements)



4. SHARE

Sharing of facilities by sme's
> 15 investments. (€ 8.1 million for equity, and rental agreements)



5. SCIENCE

Stimulating spin-off facilities
> 4 investments. (€ 0.5 million for spin off companies)



INTERVIEW WITH DEPARTING VICE-CHAIRMAN BART BERGSTEIN AND NEWLY APPOINTED BOARD MEMBER LIDUINA HAMMER ABOUT THE STATEMENT:

‘START-UPS STILL FIND THEIR WAY TO MIBITON.’

Over the past twenty years, the life sciences sector has grown into a thriving industry with no lack of venture capital. Even so, Mibiton is still a major party for start-ups looking for funding to procure equipment.

Such is the conclusion of departing Vice-Chairman Bart Bergstein and the newly appointed Treasurer Liduina Hammer. They also agree that Mibiton should not only continue its current approach and activities but also look for potential growth opportunities.

‘In 2001, I joined
the Board of Mibiton
and became
the Vice-Chairman
in 2010’

Bart Bergstein joined the Board of Mibiton in 2001. ‘Gerard van Beijnum, the Chairman of the Board at the time, was looking for an additional Board Member with a background in finance, and I was working in the Life Sciences

department of ABN-AMRO. In 2006, I joined the Supervisory Board and invested in several life sciences companies. I became the Vice-Chairman of Mibiton in 2010’, explains Bergstein.

After more than twenty years on the Board, he believes that the time has come to leave and make room for a new member.

‘Mibiton’s main focus is setting start-ups onto the right path’, he concludes. ‘Start-ups often have no clear business model, no cash flow, and no equipment to generate cash flow. Added to the fact that about fifty per cent of them are unable to pull through in the end, this is exactly why venture capital funds are unwilling to invest in start-ups. Such funds mainly focus on companies with a clear ambition to grow after a good start’, says Bergstein.

Bart Bergstein

(vice-Chairman until 31-12-2021)

‘Mibiton’s main focus
is setting start-ups
onto the right path.’

Mibiton offers loans to start-up companies in the life sciences sector to procure the equipment they need. ‘The interest proceeds just about cover the losses we experience with failing start-ups and keep Mibiton afloat. After all, Mibiton’s goal is not to make a profit but to set young life sciences businesses on the path to success.



ESSENTIAL FUNDING

Liduina Hammer, who will start as Mibiton's Treasurer on January 1st 2022, wholly agrees. 'Mibiton offers essential funding, which is of no interest to venture capital funds and instantly raises red flags with the banks. But for start-ups in the life sciences sector, these often-costly investments in equipment are crucial to survive the first stage. So that is where Mibiton steps in.'

As Head of Investment at InnovationQuarter, the regional development fund for the province of South-Holland, Hammer is responsible for the investment strategy and supervises the managers of four investment funds. Mibiton's Chairman Colja Laane – also a member of the investment committee of the IQCapital fund – advises InnovationQuarter on investment proposals relating to life sciences. And so, several months ago, he invited Hammer to join Mibiton as treasurer on January 1st 2022.



Liduina Hammer

(Treasurer from 01-01-2022)

'If we can join existing initiatives and activities in the life sciences sector even better; more start-ups may be finding their way to us in the future.'

"The current treasurer, Denise van den Berg, has done a marvellous job so it will be easy for me to take over the responsibility for Mibiton's finances. And I'm especially looking forward to assessing new investment proposals, together with the other Board Members – something I also did at InnovationQuarter, and which intrigues me every single time", explains Hammer.

I'm especially looking forward to assessing new investment proposals, together with the other Board Members

Mibiton started over 27 years ago and still follows the same course. "Start-ups still know how to find us", continues Bergstein. "Perhaps we could do more but, on the other hand, we have to keep a critical eye on our investments and say 'no' when we believe that a new business's chances of survival are too small. And although Mibiton doesn't have any shareholders requesting dividends, we still need to manage the foundation's funds wisely and carefully as this is the only way to maintain the Mibiton fund and support start-ups for many more years to come."

As a newcomer, Hammer also doesn't rule out any potential growth. "If we can join existing initiatives and activities in the life sciences sector even better; more start-ups may be finding their way to us in the future."

RECENT MIBITON INVESTMENTS 2020-2021

MIBITON SOLO PROGRAMME

Facility	AAV Gene Therapy Pilot Plant Facilities
Investment	€ 533,302
Project leader	A.Verwei
Company	VectorY

Alexander Vos (CEO)

"VectorY is a fast growing organization and we are very happy to be supported by Mibiton on the way to achievement of our goals of bringing innovative treatments to patients suffering from CNS and neuromuscular diseases."

Founded in 2020, and based in the Amsterdam Science Park, **VectorY** is a fully integrated gene therapy company focused on the development of innovative therapeutics such as vectorized antibodies for both CNS and somatic disorders, with a special focus on muscle diseases. VectorY develops proprietary & partnered programs

based on its novel AAV-based vectorized antibody & gene therapy platform. Product candidates are based on new vector technologies, which will enable the next generation of highly scalable manufacturing processes within VectorY's own manufacturing facilities for both clinical and commercial supply.

Facility	Developing a CRISPR/Cas9 gene editing technology for DMD
Investment	€ 206,419
Project leader	M. de Boer
Company	NTrans Technologies



Marco de Boer (CEO) *(middle)*

"Mibiton's support has enabled us to accelerate our innovative programs with the goal of delivering breakthrough gene-editing therapies to the patient."

NTrans Technologies (NTrans) is a Dutch biotech SME that is developing a gene-editing therapy for DMD. Its proprietary therapeutic platform triggers a cell's natural uptake mechanism to safely deliver gene editing systems, like CRISPR-Cas, into the target cell, where it efficiently restores the function of the

defective gene. To further develop the research and development of the gene-editing therapy, NTrans is expanding and has relocated to laboratory facilities at the Leiden Bio Science Park. The Mibiton investment will be used to buy advanced equipment to support the development processes at NTrans.

Facility **Circular ingredients from food companies' side-streams**

Investment € 215,000
 Project leader C. Cabrera
 Company Greencovery


Carlos Cabrera (CEO)

"We are thrilled to receive finance from the Mibiton Foundation to expand our Lab Facility. We are experiencing a growth in demand and with this expansion we are able to implement our solutions in a wider set of applications. With the Mibiton Foundation, we have a perfect partner that understands investments in a high-tech science company. We are looking forward with this step to bring circular ingredients into a broader market."

Greencovery (2018) has its roots in both Delft University of Technology and Wageningen University & Research. The company develops innovative processes using CO₂ expanded liquids with ion exchange technology, to recover and upgrade compounds from companies' side-streams. Greencovery currently focuses on the agri-food industry and

has recently expanded its R&D lab facilities at the Wageningen BioPartner Centre. During this growth phase, the Mibiton funds are used to acquire state-of-the-art extraction – and analyzing equipment. These facilities will enable Greencovery to extend its capacity to perform pilot studies for the flavour, fragrances, and supplements industry.

Facility **Expansion DAB laboratory**

Investment € 330,000
 Project leader E. van der Meer and mrs K. Herben-Steinbusch
 Company Delft Advanced Biofuels (DAB)


Kirsten Herben-Steinbusch (CTO) and Eric van der Meer (CEO)

"Mibiton offers unique financing support, which greatly helps our development at this critical point. DAB has the potential to unlock tremendous value for the global bio-renewable industry, and we are now at the critical stage of scaling-up. We are delighted that exactly at this critical point of our development Mibiton helps us with their financing support."
 (Eric van der Meer, CEO)

Delft Advanced Biofuels (DAB) spun-out of Delft University of Technology in 2012 focuses on developing and deploying innovative fermentation technologies. DAB's so-called FAST platform (Fermentation Accelerated by Separation Technology) enables increased production of selected valuable compounds, thereby significantly reducing product costs

compared to traditional fermentation. The company expands with a 500-liter FAST demonstration facility at Bio Base Europe Pilot Plant, and a tripling of the R&D capacity at its Delft laboratories. The Mibiton investments include microbial bioreactors, incubators, and a biochemistry analyzer, enabling lab scale validations and process development for selected microbial strains.

Facility

Investment
Project leader
Company

Dynamic test facility for Meniscus prosthesis development

€ 235,000
J. Hunik
ATRO Medical

**Jan Hunik** (CEO)

“Device integrity is an important aspect for acceptance of a meniscus prosthesis by the Orthopedic community. The Mibiton investment makes it possible for ATRO Medical to become the leading medical device company in meniscus prostheses development and provide a sustainable solution for patients with chronic knee pain.”

ATRO Medical started in 2017 as a spin out of the Dutch Biomedical Materials initiative with developing the artificial meniscus Tramppolin®. This medical device is indicated for patients with a disfunctional meniscus and persistent pain, where conservative treatment options have failed. To secure that the Tramppolin® device optimally mimics

the behavior of the natural meniscus, elaborative in vitro testing precedes the clinical trial program and subsequent market introduction. The Mibiton funds are used to acquire a dynamic test facility, which has 6 degrees of movement, enabling maximal simulation of the natural movements of the knee joint.

Facility

Investment
Project leader
Company

HTC Scale-up Facility at Echo Pharmaceuticals

€ 177,507
Mrs I. Terpstra
Echo Pharmaceuticals

**Inge Terpstra** (Managing Director)

“Cannabinoid delivery is our domain: we have a committed, knowledgeable team and a great product pipeline – and with the support of Mibiton financing also the equipment to get these to the market and continue growth and development”

Echo Pharmaceuticals (Echo) is a privately owned specialized pharmaceutical company with more than 10 years of experience in leading innovation in advanced cannabis-based medicines and products. The company is headquartered with offices and GMP facilities in Leiden. Echo's strong and resilient IP portfolio and proprietary knowledge on conventional and

advanced technologies for extraction, purification and formulation has resulted in a range of high-quality products, placing Echo in a unique market position in the medicinal cannabis field. The Mibiton investment is used to set up additional production lines, enabling the company to fulfill the increasing market demands.

Facility **Liquid handling robot for single-cell sequencing**

Investment € 490,458
 Project leader M. Muraro and mrs J. Vivie
 Company Single Cell Discoveries


Mauro Muraro (CEO)

"Thanks to the Mibiton loan/lease to SCD, we are able to scale and automate our laboratory processes. We can now effectively support many more customers and research projects per month and bring single-cell sequencing technology to the next level."

Single Cell Discoveries provides complete single-cell sequencing services, including SORT-Seq, VASA-Seq, 10x Genomics and Bulk RNA-sequencing. The company assists its clients in designing the single-cell experiments by offering services in the field of project planning, experiments, and data analysis. Founded in 2018 in Utrecht, the Netherlands, SCD has serviced 150+ researchers from more than 60 institutes and companies across

15 countries. As well as making single-cell sequencing accessible to a wide research community, the company is committed to continuous development and offering the very latest single-cell sequencing technologies so they can eventually be used for personalized medicine. The company has acquired a state-of-the art liquid-handling robot, enabling the further automation of crucial lab processes.

Facility **Chemical analytical lab equipment**

Investment € 178,972
 Project leader K. van Bochove
 Company Datura


Kees van Bochove (CEO)

"With the investment of Mibiton we were able to establish our own state-of-the-art laboratory facilities. This investment enables the further development of the company as the quality of the projects can be managed securely in our own laboratory facilities."

Datura (Wageningen) is a research company that uses innovative techniques to increase the quality and efficiency of ecological monitoring. We monitor biological, physical, and chemical aspects of soils and aquatic systems. The data we produce is used to assess biodiversity, increase the understanding of ecosystem functioning and monitor the effect of measures that aim to increase ecosystem quality. One of the key innovations at Datura is the use of environmental DNA: traces of

DNA left in the environment. We use environmental DNA to monitor micro-organisms such as bacteria and fungi as well as higher organisms, e.g., fish, invertebrates, and plants.

Mibiton finances the installation of an analytical laboratory, which will operate complementary to the already established molecular facilities. This enables the chemical characterization of the biological samples.

Facility

Investment
Project leader
Company

Imaging equipment for analysing cellular screening assays

€ 238,583
S. Braam
Ncardia

**Stefan Braam (CEO)**

"The Mibiton investment enabled further expansion of our assay technology platform, for identification of safe and effective drugs based on our human cellular models."

Ncardia is a privately held stem cell solution provider. The company operates worldwide with facilities and offices in Belgium and the Netherlands. Ncardia's goal is to bring better therapies to patients faster through human induced Pluripotent Stem Cell (hiPSC) technology. We have a broad range of hiPSC-derived cell models, develop custom disease models and drug discovery assays, and have the expertise for process

development and manufacturing at scale. The company's offerings serve three market segments: safety testing, efficacy testing and cell therapy. For all these market segments reliable assays to measure cell function are required. The Mibiton investment is used to acquire the high content imaging system 'ImageXpress Micro Confocal' which enables them to measure and quantify a wide range of cellular phenotypes.

Facility

Investment
Project leader
Company

Solutions for tissue-sparing tumor surgery

€ 355,520
H. Martens
Sirius Medical

**Bram Schermers (CEO)**

"Mibiton enabled Sirius Medical to significantly reduce time to market by financing our test programme and stock building."

Since its incorporation in 2017, **Sirius Medical** has enhanced its solution for tumor localization: Sirius Pintuition. The solution consists of an implantable tiny 'magnetic seed', that pre-operatively marks a tumor, and a sensitive detector that precisely guides the surgeon to the marked tumor during surgery. The Sirius Pintuition system improves patient experience, surgical usability and allows hospitals to optimize

their care pathway leading to project cost savings.

The k€ 355 of financing is used to invest in hardware (Pintuition detectors, and Pintuition Seeds). These devices are allocated for (i) development (testing) purposes, not suited for commercial release, (ii) commercial rental of systems to customers and systems for study purposes and (iii) production of a sales stock.

PREVIOUS MIBITON INVESTMENTS 2005-2019

Facility **Nanoflowsizers and diagnostic lab facility**

Investment € 197,682
 Project leader A. Gerich, MSc (CEO)
 Company InProcess-LSP

Facility **Second pharmaceutical filling and finish production line**

Investment € 400,000
 Project leader A. Willemse, PhD (CEO)
 Company BioConnection

Facility **Molecular eDNA facilities**

Investment € 134,610
 Project leader K. van Bochove, MSc (CEO)
 Company Datura Molecular Solutions

Facility **CarbExplore Research & CarbExplore Sweeteners lab equipment**

Investment € 180,769
 Project leader S. Moolenaar, MSc (CEO)
 Company CarbExplore

Facility **Cleanmeat: the development and production of animal-friendly, sustainable and scalable lab-grown meat products.**

Investment € 166,838
 Project leader K. de Nood, BA, MSc (CEO)
 Company Meatable

Facility **MicroSure 'Motion Stabilizers'**

Investment € 337,392
 Project leader L. Schiemanck (COO)
 Company MicroSure

Facility **Transforming CO₂ from an issue to a valuable product, powered by the sun**

Investment € 397,973
 Project leader V. de Bruijn MSc MBA (CEO)
 Company Photanol

Facility **Production of new medical device (DeltaScan) for monitoring delirium**

Investment € 328,928
 Project leader R. van Merkerk PhD MSc (CEO)
 Company Prolira

Facility **Evolution inspired medicine**

Investment € 176,000
 Project leader S. Nijman PhD (Founder & Managing Director)
 Company Scenic Biotech

Facility **Equipment to purify Matisse M6229 to study the clinical impact on sepsis**

Investment € 250,000
 Project leader B. Kool PharmD and H. Relouw (CFO)
 Company Matisse Pharmaceuticals

Facility **Diagnostic equipment for the preclinical analysis of second generation CriPec® nanomedicines.**

Investment € 248,136
 Project leader J. Holthuis PhD
 Company Cristal Therapeutics

Facility **SpinPro reactor adaptation**

Investment € 196,995
 Project leader J. van den Berg
 Company Flowid

Facility **Bioprocess equipment for upscaling of cardiomyocytes production**

Investment € 172,749
 Project leader S. Braam PhD
 Company Ncardia (Pluriomics)

Facility **Semi-automatic production line for dip-coating endoscopic biopsy needles with Sono-Coat**

Investment € 248,552
 Project leader H. Breek MD
 Company Encapson

Facility	Certified facility for processing of biological tissues
Investment	€ 254,700
Project leader	Mrs. H. Valster
Company	HCM Medical
Facility	Facility to organize Pharmaceutical Compound Libraries
Investment	€ 370,000
Project leader	J. Tijhuis PhD
Company	Specs Compound Handling
Facility	Spinning Disc Production - SpinPro
Investment	€ 150,000
Project leader	W. Stam MSc
Company	Flowid
Facility	Accelerate configuration of GENALICE VAULT servers to process Next Generation Sequencing Data
Investment	€ 100,000
Project leader	J. Lunenberg
Company	Genalice



Facility	Multispectral Normalized Imaging System enabling real time surgery guidance
Investment	€ 347,118
Project leader	T. van den Hoven
Company	Survision
Facility	Equipment: Labscale manufacturing and characterization of Nanoparticles
Investment	€ 250,252
Project leader	J.J.M. Holthuis PhD
Company	Cristal Therapeutics
Facility	Expansion of Lanthio Pharma's lantipeptide production- and analysis facility
Investment	€ 164,009
Project leader	G. Moll PhD
Company	Lanthio Pharma
Facility	Equipment for the novel DCPrime facility at the BioPartner Centre Leiden
Investment	€ 286,857
Project leader	M. Zwaal
Company	DCPrime
Facility	Facility to produce and analyse vaccine proteins
Investment	€ 259,416
Project leader	C.J. Leenhouts PhD, G.J. Schouten PhD
Company	Mucosis
Facility	Development of a novel disposable Trocar system to perform brain surgery
Investment	€ 183,750
Project leader	M.J.S. Begemann MSc
Company	Neurendo
Facility	Microscopic- and analytical facility to unravel the blood-brain barrier mechanism
Investment	€ 111,183
Project leader	W. van Weperen MSc MBA
Company	to-BBB

Facility **Production Facility**

Investment € 248,150
 Project leader Ir. P.B. Hol
 Company Delphi Bioscience

Facility **Feeding the Future, Facilities for high end products from algae**

Investment € 346,000
 Project leader G.F. Woerlee PhD
 Company FeyeCon, CleanAlgae SA / Algae Biotech SA

Facility **FlexArrayer lease to accelerate global expansion**

Investment € 204,957
 Project leader F. Dom MSc
 Company FlexGen

Facility **Lab. Facility**

Investment € 161,799
 Project leader Mrs. R. Lamers PhD, Mrs. M. Wordragen. PhD
 Company NSure

Facility **3D Fibre deposition equipment**

Investment € 48,096
 Project leader J. Riesle PhD
 Company CellCoTec

Facility **Application for an Octet biosensor**

Investment € 97,614
 Project leader T. Logtenberg PhD
 Company Merus Biopharmaceuticals

Facility **SKIN Analyzer**

Investment € 400,000
 Project leaders G.J. Puppels PhD, M.P. Dijkshoorn MSc
 Company River Diagnostics

Facility **Personalizing Cancer diagnosis**

Investment € 168,300
 Project leader H.E. Viëtor PhD
 Company Skyline Diagnostics

Facility **Octet en AKTA explorer**

Investment € 149,183
 Project leaders A. van Brakel, L.N. Sierkstra PhD
 Company BAC

Facility **Expansion of PROXY Laboratories' analytical equipment**

Investment € 90,488
 Project leader R.E. Santing PhD
 Company PROXY Laboratories

Facility **AKTA Process**

Investment € 170,000
 Project leaders A. van Brakel, L.N. Sierkstra PhD
 Company BAC

Facility **Gene Expression Profiling for Molecular Diagnostics of Leukaemia and other Malignancies**

Investment € 165,194
 Project leaders H.E. Viëtor PhD, Prof. B. Löwenberg PhD
 Company Skyline Diagnostics



MIBITON INTERVIEW

ENTREPRENEURSHIP TO BRIDGE THE **VALLEY OF DEATH**

“At TOP, we always ask ourselves what latent need exists in the market and how we can respond to this with new technology and equipment. There are plenty of ideas on the shelves of universities. Based on this, we develop new technologies that have a chance of being commercially applied after five to ten years.”

We speak with Wouter de Heij, director of TOP, a company that focuses on the development of new technologies for commercial application in new markets. He and his team do not shy away from bridging the gap between laboratory and industrial scale, also known as the ‘valley of death’. Once the technology is ready for the market, TOP sells or licences it and then picks up a new challenge. The company, which employs some 25 people, focuses mainly on innovation in the food industry.

De Heij explains that TOP starts each innovation project without immediately involving potential customers. “You have to have a creative environment to be able to make inventions. Based on scientific knowledge, we design new equipment for a process, for which we anticipate a latent need exists in the market. Over time, we seek to collaborate with customers and equipment manufacturers to tailor the new technology to specific commercial applications.”

‘We know we can do something with it, but not exactly what, and there is no market for it yet. But in collaboration with a partner and customers, it is possible to find and develop commercial applications.’



Wouter de Heij (CEO)

“You have to have a creative environment to be able to make inventions.”

For example, TOP has developed a technology that allows producer Ojah to make a meat replacement product based on soy and water, called Beeter®, whose structure, taste and bite are comparable to those of chicken. The technology involves texturising the vegetable protein in soy using what is known as ‘high moisture extrusion’. Ojah was initially one of TOP’s internal innovation projects.

PRESERVING FRUIT JUICES

Another achievement concerns the preservation of fruit juices by exposing them to extremely high pressure. This so-called HPP technology, whereby HPP

stands for ‘high pressure pascalisation’, retains the aroma and taste. The development started in 2009. TOP and juice producer Juicy-Line together knocked at Mibiton’s door and obtained a financial lease to finance the hire purchase of a high-pressure machine from the American manufacturer NC Hyperbaric, the Wave 6000/55. Shortly thereafter, they received a second financing from Mibiton to purchase an HPP device with eight times the capacity, the Wave 6000/420. Through their joint venture Pascal Processing in Helmond, they were also able to preserve products for other companies.

“Juicy-Line began as a small company, but has grown to become the largest juice manufacturer in Europe with annual sales of hundreds of millions and employing hundreds of people. HPP is now a mature technology that is used on a large scale”, says De Heij.

“That’s often how it goes”, he continues. “We know we can do something with it, but not exactly what, and there is no market for it yet. But in collaboration with a partner and customers, it is possible to find and develop commercial applications. Most of the juices and smoothies you see on supermarket and petrol station shelves today have been preserved using HPP. This technique is also used to prolong the shelf life of ready-made meals.”

With HPP, the fruit juice bottles are placed in tubes that are pushed into the high-pressure device, after which the pressure is increased to 6000 bar. In this process, the cell walls of bacteria that would otherwise cause premature spoilage collapse.

“That pressure is equivalent to the pressure of a 60-kilometre layer of water. That is five times as high as the pressure

at the bottom of the Mariana Trench in the Pacific Ocean”, says De Heij.

In 2011, TOP received a second financial lease of almost half a million euros for the construction of a drying and extraction plant for algae and other botanicals in collaboration with Phycom, a major producer of algae in the Netherlands. This was a new extraction technology, which was subsequently transferred to extraction company PhytoNExt.

TOP also pioneered ‘pulsed electric field’ (PEF) technology, which enables the extraction of high-quality substances from plants and the pasteurisation of liquid food. The advantage here is that aroma, taste and vitamins are preserved at a temperature of up to 40 °C. In order to develop this PEF technology, TOP and extraction company PhytoNExt, which also emerged from TOP, entered into a four-year agreement with Mibiton in 2015 to purchase a PEF generator worth almost two hundred thousand euros.

PhytoNExt now applies this new mild extraction method on a large scale to get high-quality food supplements into your hands unscathed. Subsidiary company

‘If you want to buy a half-million-euro device to do applied research, you don’t get a subsidy just like that, and certainly not from a university.’

Becanex in Berlin has been using the PhytoNExt extraction platform to extract cannabis oil from hemp since 2019.

SHORT PULSES

In PEF, short electrical pulses pass through a continuous stream of food or juice like a heartbeat. Those pulses have a voltage of 60,000 volts and a current of 6,000 amps. They deliver a short-lived power of 600 megawatts, which destroys the membranes of bacteria and also kills fungi and yeasts. As a result, drinks and liquid food products is being preserved for at least three weeks. “Several large producers now use PEF in addition to HPP to pasteurise juices”, says De Heij.

TOP is running a new programme to pasteurise protein-rich flows with PEF. “With raw milk, for example, we face the problem that with laminar flow, the liquid flows slower at the edge than in the middle, causing proteins to coagulate near the wall. If we succeed in solving this, we can apply PEF, for example, to make oat milk preservable, so that it tastes much better compared to high-temperature sterilisation.”

TENDER MEAT

TOP is basically the research branch of Blue Ocean Xlerator (www.boxnv.nl), a private incubator for entrepreneurs who want to develop sustainable innovations. Together with Bflike, TOP has also developed a platform technology to produce meat and fish replacement products based on vegetable raw

materials. “Vegetarian meat is often dry, because fats are missing. Bflike products, however, are just as tender as regular meat”, explains De Heij. In April of 2021, Bflike was partly acquired by the American group Cargill, but TOP will remain involved as a partner of both companies in the development of the technology and recipes that Bflike licences throughout the world. TOP also generates its revenues mainly by licencing new technology. Companies that apply the new technology or manufacturers that build devices for it pay royalties to the company.

“That allows us to keep the business running. There are no major investments. We find ourselves constantly in the ‘valley of death’. Some developments succeed, others do not. Our shareholders know this and accept that they will not receive dividends every year”, explains De Heij.

FINANCING IN THE EARLY STAGES OF DEVELOPMENT

It was precisely because of the innovation risk that TOP turned to Mibiton for equipment financing. De Heij: “If you want to buy a half-million-euro device to do applied research, you don’t get a subsidy just like that, and certainly not from a university. A bank or a leasing company will only conclude a lease contract with you if the equipment retains a considerable residual value and sufficient cash flow on the investment is guaranteed. But our prototypes don’t meet these requirements. And venture

‘Without these loans, PEF technology would never have matured and there would not have been a company like Becanex. Mibiton provides the first stepping stones, which would not be provided by a bank or venture capitalist. And that is essential to bridging the valley of death.’

investors want to be assured of a decent return, but that's not possible at an early stage of technological development.”

Mibiton does not provide capital but loans (financial lease) with a repayment period of 4 to 5 years, which sometimes involves only paying interest in the first year and starting actual repayments in the second year. The interest rate of 8% is high, but on the other hand, if things go well, a start-up can repay the loan early and will not be stuck with a debt if things go wrong. Furthermore, Mibiton allows some deferral of payment if there are problems. Last year, for example, TOP was able to postpone the final loan repayment for six months during the Corona pandemic.

“If you fall behind with your payment at a bank, you immediately end up in the non-performing accounts department. Mibiton, on the other hand, thinks with us and remains flexible”, says De Heij. Moreover, Mibiton does not require collateral for a loan. The foundation estimates the chances of success of

a start-up in advance on the basis of a due diligence study and then decides whether to grant a loan in the form of a financial lease. If a project fails, there is no problem, even if the company goes bankrupt, because Mibiton remains the legal owner of the equipment and can remove it if necessary and sell it at the residual value.

Taking risks is part of Mibiton's mission. After all, the foundation was set up to help young companies in the life sciences get off the ground, not all of which succeed. But the companies that do succeed make the investments worthwhile.

De Heij's assessment of the significance of the Mibiton loans for TOP is clear. “Without these loans, PEF technology would never have matured and there would not have been a company like Becanex. Mibiton provides the first ‘stepping stones’, which would not be provided by a bank or venture capitalist. And that is essential to bridging the ‘valley of death’.”



ABOUT MIBITON

The Mibiton foundation invests in the Dutch Life Sciences infrastructure and has three funds: Science, Solo and Share. The investments are in general provided as financial lease constructions.

Mibiton Science: supports spin off companies still incubating at the premises of the Research organization. The equipment or facilities are shared with the research organization, which provide a guarantee to partly compensate for the investment. Maximal investment of € 250,000,-

Mibiton Solo: provides loans up to € 500,000,- to acquire equipment for young Life Sciences companies. The cash flow managing facilities support can for instance be used to equip a state-of-the-art laboratory or to develop novel equipment.

Mibiton Share: facilities are exploited by at least two partners, from which at least one is a Life Sciences SME. Part of the facilities or equipment may be installed at each partner. Investments may accumulate up to € 650,000,-

WWW.MIBITON.NL

MIBITON SHARE PROGRAMME

Facility **ISO Class 8 cleanroom environment and associated equipment for the manufacture of terminally sterilized medical devices**

Investment € 399,010
 Project leader Mrs. V. Fernandez PhD and G. Woerlee PhD
 Company Echo Pharmaceuticals
 Partner FeyeCon D&I

Facility **High Pressure Pasteurisation of Food products**

Investment € 850,000
 Project leader Ir. J.C.M. van Rijsingen
 Company Pascal Processing
 Partner Proverka

**Facility** **Accessing valuable plant metabolites and cold sterilization by applying Pulsed Electric Field 2.0**

Investment € 170,000
 Project leader W. de Heij MsC
 Company TOP
 Partner PhytoNExT

Facility **Oligonucleotide-based drug analysis in a GMP-certified environment**

Investment € 117,907
 Project leader D.A. de Boer, R.E. Santing PhD
 Companies ProQR Therapeutics en PROXY Laboratories

Facility **Demonstration unit for CO₂ drying for premium quality dried food products**

Investment € 550,090
 Project leader Ir. G.F. Woerlee PhD
 Company FeyeCon
 Partners AVEBE U.A. (Ir. M.L.F. Giuseppin PhD)

Facility **Isolation, extraction and drying of food**

Investment € 437,352
 Project leader E. Houtzager PhD
 Company Phycom
 Partners TOP

Facility **Manufacturing and analyses platform for synthetic peptides in the Leiden Bio Science Park**

Investment € 600,000
 Project leader R.H. Holslag MSc
 Company Prosensa Therapeutics
 Partner ISA Therapeutics (G. Platenburg MSc)

Facility **Diagnostic fingerprinting for Acute Myeloid Leukemia**

Investment € 404,107
 Project leader H.E. Viëtor PhD – K. Schmidt (2012)
 Company Skyline Diagnostics
 Partners Erasmus MC (Prof. B. Löwenberg PhD), Sanquin (R. Baumgarten PhD)

Facility **Oligonucleotide based drug manufacturing and analysis in a GMP-certified environment – Manufacturing equipment and investments for facility adaptation**

Investment € 1,273,334
 Project leader R.H. Holslag MSc
 Company Prosensa Therapeutics
 Partner PROXY Laboratories (R.E. Santing PhD)

Facility **HPP equipment WAVE 6000/55**

Investment € 481,500
 Project leader H. Tournois PhD
 Company TOP
 Partner Juicy-Line (M. Bruijn)

Facility **Next Generation DNA sequencer**

Investment € 398,421
 Project leader B.J. Reichert MSc
 Company BaseClear
 Partner ZF-screens (Prof. H.P. Spaik PhD)

Facility **Biqualyis**

Investment € 125,000
 Project leader J. van der Leijé MSc and C. van der Plasse a.i.
 Shareholders Wageningen Business Generator, BioX BioSciences, Mibiton

Facility **Oligonucleotide based on drug development using LC-MS in a GLP certified environment**

Investment € 204,974
 Project leader G. Platenburg PhD and R.H. Holslag MSc
 Company Prosensa Technologies
 Partner PROXY Laboratories (R.E. Santing PhD)

Facility **UPLC high throughput HPLC**

Investment € 84,998
 Project leader J. Bender MSc, PharmD
 Company Bactimm / Farmalyse
 Partner FeyeCon (G.F. Woerlee PhD)

Facility **BioConnection**

Investment € 2,000,000
 Project leader A. Willemse PhD
 Shareholders MSD, Brabant Development Company, Mibiton

MIBITON SCIENCE PROGRAMME

Facility **Equipment Incubator Center Catalyst Eindhoven**

Investment € 467,592
 Project leaders F. de Jong MSc, M.A.J. Cox PhD, W. Stam MSc
 Companies EmulTech, Xeltis, Flowid

Facility **Acceleration of the development of novel antimalarials**

Investment € 40,006
 Project leaders K. Dechering PhD
 Company TropiQ
 Partners RUMCN (Prof. R. Sauerwein PhD)



MIBITON INVESTMENTS 2000-2004

MIBITON SOLO PROGRAMME

Facility HPLC Alliance system in a GLP setting

Investment € 46,229
Project leader R.E. Santing PhD
Company PROXY laboratories

Facility Salmonella Serovar-Array

Investment € 94,900
Project leader J. Thijssen MSc
Company Check-Points

Facility Dedicated Raman Instrument

Investment € 110,000
Project leaders W.M. Riggs, G.J. Puppels PhD
Company River Diagnostics

Facility DNA Multiplex Platform

Investment € 140,295
Project leader G. Simons PhD
Company PathoFinder

Facility Laboratory equipment

Investment € 120,259
Project leader A.D. de Boer PhD
Company Genetwister Technologies (Expressive Research)

Facility PCR and sequencing equipment

Investment € 262,710
Project leader A.D. de Boer PhD
Company Genetwister Technologies (Expressive Research)

Facility ZQ2000
Investment € 150,000
Project leader P.C. van Dijken PhD
Company Pepscan Systems

BIOPARTNER FACILITIES SUPPORT PROGRAMME

Facility Production pipeline for natural compounds
Investment € 600,725
Project leader Prof. R. Verpoorte PhD (Leiden University)
Partners Enzysscreen, FeyeCon, Xenobiosis and Farmalyse

Facility High throughput capillair system, micro-organisms
Investment € 150,000
Project leader Prof. J.D. van Elsas PhD (University of Groningen)
Partners Ingeny, BioClear

Facility High throughput capillair system, human disease genes
Investment € 150,000
Project leader Prof. C.H.C.M. Buys PhD (Academic Medical Centre Groningen)
Partners Ingeny, Synvolux

Facility Seldi Proteomics
Investment € 879,431
Project leaders C.G. de Koster, Prof. J.M.F.G. Aerts PhD, D. Zonneveld BSc (AMC Amsterdam)
Partners MacroZyme, Primagen, Genzyme

Facility CombiChem Synthesis
Investment € 301,435
Project leader Prof. F.P.J.T. Rutjes PhD (Radboud University Nijmegen)
Partners Chiralix, DSM Geleen

Facility Test facility for marine invertebrates
Investment € 173,557
Project leader Prof. R.H. Wijffels PhD (Wageningen University)
Partners EcoDeco, Diergaarde Blijdorp, S::can

Facility Multiple Imaging Plant Stress

Investment € 181,517
 Project leaders A.J. Koops PhD, W.J.M.R. Jordi PhD (Plant Research International)
 Partners Plant Dynamics, Growlab, Syngenta Mogen

Facility Molecular Device FLEX Station

Investment € 235,249
 Project leader J.A.G. van Strijp PhD (University Medical Center Utrecht).
 Partners Pepscan Systems, JARI Pharmaceuticals, Sopachem NV

Facility Membrane Protein Laboratory

Investment € 483,323
 Project leaders Prof. A.P. IJzerman PhD, Mrs. M.W. Beukers PhD (Leiden University)
 Partners APBiotech, Applikon, Beckman Coulter, Perkin-Elmer, Screentec (Kiadis)

**Facility Multiple Peptides Synthesizer**

Investment € 324,452
 Project leader P.C. van Dijken PhD
 Company Pepscan Systems

Facility Elisa robot

Investment € 191,373
 Project leaders Prof. J. Brouwer PhD, Prof. H.A. de Boer PhD (Leiden University)
 Partners MucoVax, Biocult, Pharming Transgenic Technology

MIBITON (+) PROGRAMME**Facility Proteomics Nijmegen**

Investment € 844,000
 Project leader Prof. R.A. Wevers PhD (Radboud University Nijmegen)
 Partners Amersham Biosciences, KGCN, Multigen, Tecan, Thermo Elektron, Yamanouchi

Facility Proteomics Groningen

Investment € 713,314
 Project leader Prof. R.J. Vonk PhD (University of Groningen)
 Partners Danone, Merck, Agilent, IQ Corporation, Pharma Key, Biacore, Simac

Facility Biacore 3000

Investment € 228,251
 Project leaders P.J. Schaap PhD, M.C.R. Franssen PhD, Prof. J.A. van den Berg PhD (Wageningen University)
 Partners Danisco Ingredients, DSM Food Specialties

Facility Advanced Fermentation Facilities (Phase 2)

Investment € 318,235
 Project leader Prof. J.G. Kuenen PhD (Delft University of Technology)
 Partners Micromass, anonymous company

MIBITON INVESTMENTS

1994-1999

Facility 1500 litre G51 Bioreactor

Investment € 293,823
 Project leader G. Eggink PhD (Agrotechnology and Food Innovations)
 Partners CSK Food Enrichment, Fuji Photo Film, Hercules, Numico Research, Applikon Dependable Instruments

Facility Cytokine laboratory

Investment € 279,342
 Project leader Prof. H. Schellekens PhD (Utrecht University)
 Partners Biosource, BPRC, Innogenetics, Medarex, U-CyTech

Facility Central GMP & GLP facility

Investment € 722,914
 Project leaders Prof. J.A. Schalken PhD, Ir. J. de Koning (Radboud University Nijmegen)
 Partners Beckman, Bioprocon, BioRad, Eurodiagnostics, Future Diagnostics, IKS, Intertrial, Perkin Elmer, Yamanouchi

Facility Genotyping Company

Investment € 494,711
 Project leader G. van der Steege PhD (University of Groningen)
 Partners Pharma Bioresearch, Amersham Pharmacia, Solvay Duphar

Facility Detection laboratory

Investment € 489,648
 Project leader A.D. de Boer PhD (Genetwister Technologies)
 Partners Beckman, B&L Systems, Enthoven Breeding, Enza Zaden, Humako Holding, Pharmacia, Wallac EG&G, Westburg

Facility Physiology laboratory

Investment € 114,477
 Project leaders A.J. Koops PhD, W.J.R.M. Jordi PhD (Plant Research International)
 Partners Nunhems, VanderHave Research, MOGEN International



Facility MALDI-TOF-MS

Investment € 172,436
 Project leader G. Beldman PhD (Wageningen University)
 Partners B&L Systems, Campina, Hercules, Isogen Biosciences, Nedalco, Nunhems Zaden, anonymous company

Facility High Throughput Screening Centre

Investment € 470,865
 Project leaders G.J.W. Euverink PhD, Prof. L. Dijkhuizen PhD (University of Groningen)
 Partners Hercules, DSM Research

Facility Electronic Nose

Investment € 151,597
 Project leaders J. Roozen PhD, M. Bucking PhD (Agrotechnology and Food Innovations)
 Partners Bromyc, Coberco Isoco, Cacao De Zaan, Hitma

Facility CAVE Biotechnology Centre

Investment € 181,512
 Project leader A. Berg PhD (SARA)
 Partners Silicon Graphics, Unilever Research Lab

Facility **Molecular laboratory for HIV analysis**
Investment € 952,938
Project leader J.M. Eekel (AMC Amsterdam)
Partners ASD, Bristol Myers Squibb, Glaxo Wellcome, Igen, Merck, Organon, anonymous company

Facility **Advanced Fermentation Facilities (phase 1)**
Investment € 820,629
Project leader Prof. J.G. Kuenen PhD (Delft University of Technology)
Partners DSM (G-B), Applikon, S&G Seeds, Hewlett Packet, anonymous company

Facility **Characterization biopolymers**
Investment € 928,451
Project leader G. Eggink PhD (Agrotechnology and Food Innovations)
Partners Campina, Coberco, CSM Suiker, Friesland Frico Domo, DSM (G-B), Nutreco, Applikon, Hercules, S&G Seeds, Solvay Duphar, Quest International, LHS Micro-Filtrations

Facility **Lab. for Animal genome analysis**
Investment € 277,479
Project leader J.A.M. van Arendonk PhD (Wageningen University)
Partners Euribrid Inc., Holland Genetics V.O.F.

Facility **DNA-robots**
Investment € 145,210
Project leader R.D. Hall PhD (Plant Research International)
Partners Avebe, Unilever Research Lab, Westburg

Facility **Microscopy Centre**
Investment € 202,495
Project leaders Prof. A.J.W.G. Visser PhD (Wageningen University), Prof. H.J.Tanke PhD (Leiden University)
Partners Unilever Research Lab, Quest International, AKZO Nobel, Kreatech, Beun de Ronde, ISS, Carl Zeiss

Facility **Laboratory for Plant Biotechnology**
Investment € 215,562
Project leader Prof. J.C.M. Smeekeens PhD (Utrecht University)
Partners VanderHave Research, MOGEN International, Cooperation SuikerUnie

Facility **X-ray Structure Analyses Centre**
Investment € 461,214
Project leader R. de Vos (University of Groningen)
Partners Unilever Research, N.V. Organon, DSM Central laboratory

Facility **Analyses plant material**
Investment € 156,917
Project leaders A.A.J.M. Franken PhD, B. Vosman (Plant Research International)
Partners Ansynth Service, BMTC, Pharmacia, Registerbureau Lelieweefselkweek

Facility **Laboratory for carbohydrate analyses**
Investment € 283,434
Project leader Prof. R.G.F. Visser PhD (Wageningen University)
Partners Avebe B.A., Mettler Toledo

Facility **PK-3 Facility**
Investment € 93,025
Project leader A.R. Stuitje (VU Amsterdam)
Partners Rijk Zwaan, S&G Seeds

Facility **PK-3 Greenhouses**
Investment € 760,964
Project leader Th.P. Straathof PhD (Unifarm)
Partners Dutch Agro Industry (11 companies)



MIBITON, MAKES MORE POSSIBLE!

- Our investments in advanced research, development and production equipment give the young SMEs in the Netherlands more flexibility to manage their cash flow
- We provide a boost: the route to the market is shortened by approximately one year
- Every euro invested by Mibiton is worth an average of 5 euros after 5-10 years and leads to a significant increase in the number of employees
- Mibiton ensures faster market penetration of new products and more opportunities to collaborate with established companies and investors
- We prefer not to participate in shares, so there is no dilution effect
The speed with which Mibiton acts improves the competitive position

- We offer complementary finance with other investors by providing high-risk loans and financial lease constructions
- The cooperation with Mibiton also serves as a quality guarantee for other venture capital providers and increases the chance that companies will be able to arrange their additional financing in the future
- Mibiton contributes to solving a market imperfection
- Mibiton provides opportunities when no alternative financing is possible
- Mibiton has been a well-functioning revolving fund of high quality with high customer satisfaction for 25 years

THE MIBITON FOUNDATION

MATERIAL INFRASTRUCTURE BIOTECHNOLOGY NETHERLANDS

The Mibiton Foundation stimulates entrepreneurship and public-private partnerships by investing in Life Sciences facilities.

Office Management

Vera Blom, blom@mibiton.nl

Investment Management

Kees Recourt PhD

Board

Colja Laane PhD, Chairman (T&E Product Development and Advice)
Hans van den Berg MSc, Secretary (former MSD, VandenBerg Advies)
Denise van den Berg MSc (vandenbergh Counseling & Consulting)
Ernst van den Ende PhD (Director Animal Sciences Group Wageningen)
Edward van Wezel MSc (Managing Partner BioGeneration Ventures)
Liduina Hammer BSc MBA, Treasurer (Innovation Quarter)

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Colja Laane



Vera Blom



Ernst van den Ende



Kees Recourt



Edward van Wezel



Hans van den Berg




Liduina Hammer



Dénise van den Berg

COLOPHON

- 
- Design** Optima Forma bv, Voorburg
- Photography** Nils van Houts fotografie, Hoofddorp
- Organization** Vera Blom, Mibiton