YOUR INNOVATION BUSINESS PARTNER

GU HOLDING
THE HOLDING COMPANY AT THE UNIVERSITY OF GOTHENBURG
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COVER
Fredrik Bäckhed, Anna Sjöblom-Hallén and Anna-Carin Olin. Researchers and entrepreneurs at the University of Gothenburg.

Your Innovation Business Partner

PRODUCTION GU Holding

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Dear Readers, GU Holding is proud to present our company and our portfolio of interesting innovative companies, projects and investment opportunities.

Our main goal is to create valuable profitable companies. We are committed to adding value to the companies we support and to delivering high quality results for our owners, funders, investors and partners. We constantly invest the capital gained from these companies into new companies.

Our portfolio is diverse. It contains over 40 unique companies and projects at various stages of development. We are dedicated to evaluating and verifying new business ideas, increasing the value of our assets and creating profitable companies. We evaluate the commercial potential of about 50 new proposals a year and offer business development support, through our well-established incubation process, to approximately 30 projects and offer verification support to 20 projects. We invest in about 5 companies and projects a year and help the companies and projects we cannot support ourselves to find suitable partners. We work with our portfolio companies and projects to develop the business and create value. Every year we make about 10 follow-up investments in our existing portfolio companies. We have a strong exit focus and are always looking for new investors to take over our part in our more mature companies. We sell our shares in 1-4 companies a year and re-invest the money we receive in new companies. We also help researchers to strengthen their research environments and have created a handful of research platform companies to commercialize their innovations.

Our track record is impressive. In 2011 our turnover was SEK 18 million and our portfolio companies had a total turnover of SEK ~70 million. This was a remarkable achievement as the majority of the companies in our portfolio are very young. In 2011 the companies that we started and have exited had a combined turnover of SEK 250 million and many were profitable. We know that our activities add great value to the companies and projects we support – for every SEK 1 we invest our companies and projects generates SEK 10. This is an incredible achievement for a small organization employing 18 people.

We are continually growing and expanding. Our business development, incubation and internal processes are also constantly evolving to reflect the ever changing world we live in and the needs of our portfolio companies and projects, stakeholders and financers. We are always looking for new ideas so we distribute a newsletter to publicize our activities and have held a number of competitions to attract new ideas.

Sustainability is important to us. We are working hard to improve our operational sustainability by diversifying our portfolio to ensure that we create social and economical impact through the outstanding work being done at the University of Gothenburg and improve our financial sustainability by doing better deals and by attracting more external financing. We are also keen to create companies that offer sustainable solutions that improve the environment we live in.

Our dedication to improving our operational and environmental sustainability is reflected in the projects we are currently working on. For example, one project is focused on supporting clean-tech companies that aim to improve the globe environment. Another is focused on creating sustainable aquaculture companies and a third is focused on creating cultural and creative companies.

We are ambitious. We are committed to increasing the utilization and commercialization of new ideas to create economic growth and improve the quality of life of people in Sweden and across the global. We are convinced that the work we do is good for the companies and projects we support and our stakeholders – the government and the citizen of Sweden.

We hope that this brochure will give you a good insight into GU Holding and our portfolio companies and projects.

Klementina Österberg
The University has 8 faculties and about 60 different Departments, which cover most scientific disciplines, making it one of the broadest and most wide-ranging higher education institutions. It has about 38,000 students and 5,900 employees, of which 500 are professors, 2,700 are teachers and doctoral students and an annual turnover of SEK five billion.

INTERNATIONAL CLASS RESEARCH AND DEVELOPMENT

The University of Gothenburg is internationally recognized for its cutting-edge research in a wide range of areas. The University is particularly proud of the achievements of Professor Arvid Carlsson who was awarded the Nobel Prize in Medicine in 2000 for his research into neuropharmacology. The University has identified 8 key areas of strength; research close to the patient in cardiac and vascular disease, including obesity, biomaterials and vaccines, research on learning, language technology, democracy and opinion, and the marine environment and GU Holding has established a number of companies and projects to support these strategic areas. The University of Gothenburg recognizes the benefits that collaborating with other Universities and industry can bring to the University, industry and the wider society. The University and GU Holding have consistently intensified and strengthened their relationships with Chalmers University of Technology, Sahlgrenska University Hospital and many industrial partners in Sweden and abroad. The University currently has about 2,300 collaborative projects, about 900 exchange agreements and welcomes over 2,500 international students from 70 countries every year.

THE UNIVERSITY’S INNOVATION SUPPORT SYSTEM

The University has an excellent innovation support system. The Research & Innovation Service offers researchers innovation and utilization advice and legal support as well as help applying for funding and access to a wide network of other support services and experts. GU Holding, supports researcher who want to commercialize their research and offers a wide range of services that complement the services offered by the Research & Innovation Service. The University has several entrepreneurship schools and an Institute for Innovation and Social Change that offer courses in innovation and entrepreneurship to help develop the entrepreneurs of the future. The University also has an Intellectual Property Research Centre. The University encourages students and researchers to enter business plan competitions and works closely with local and governmental development organizations that support entrepreneurship and the creation of new ventures.

Pam Fredman is the Vice-Chancellor of the University. She is a Professor of Neurochemistry and has held several leading positions within the University, for example as Dean of the Sahlgrenska Academy. She also actively participates in several national and European university networks.

Researchers from the University of Gothenburg

Arvid Carlsson is a Swedish scientist who is best known for his work on the effects of the neurotransmitter dopamine on Parkinson’s disease. Carlsson was awarded the Nobel Prize in Medicine in 2000, along with co-recipients Eric Kandel and Paul Greengard, for his work on dopamine.

Olle Isaksson is the founder of one of the companies developed by GU Holding. He is at present a Director and portfolio Manager at Ericsson Enterprise AB. He has a Master of Science in Industrial Engineering from the University of Linköping.
GU HOLDING

GU Holding builds and invests in new research-based companies to create economic growth and improve the world we live in. The company is connected to the University of Gothenburg, one of Sweden's largest academic institutions, and is one of the most active knowledge transfer organizations in Sweden.

GU Holding AB, was established in 1995 by the Swedish Government to manage the commercialization of research from the University of Gothenburg. Since then, the company has provided business support and funding to evaluate business ideas, protect intellectual property, and create companies through its incubation and investment processes. GU Holding’s incubation and investment processes are very robust and have resulted in the creation of many successful companies.

BUSINESS IDEA

GU Holding builds, finances, develops, and sells companies with great commercial potential founded on the basis of research and know-how from the University of Gothenburg.

GU Holding’s portfolio is diverse and contains companies and projects from a wide range of areas including life sciences, clean-tech, and information & communication technologies reflecting the University’s broad range of cutting edge research.

VISION 2020

GU Holding’s vision is to help improve the world we live in by commercializing research from the University of Gothenburg. GU Holding works with innovators from the University and industry to shape a better future by creating companies that deliver the products and services developed by the innovators to the international market. We live up to our vision every day by being a successful business developer, seed capital investor, and part-owner in the companies we create. We always generate the greatest possible return on the resources we invest in these early stage companies for the sake of the researchers involved in the companies, the University, and society.

OBJECTIVES

GU Holding’s overall objective is to create growth and improve the world we live in by commercializing the cutting edge research performed at the University. To achieve this objective GU Holding creates and supports new companies. It provides access to funding, business development services, legal and accounting services, and training for the researchers involved in the business.

The business idea of GU Holding is to build, finance, develop and divest assets and business ventures with great commercial potential founded on the basis of research and know-how from the University of Gothenburg.

Facts and figures

- 80 companies have been financed and launched
- 47 companies and projects are operating today
- 330 people were employed by companies created by GU Holding
- SEK 250 million in revenue in total
- SEK 80 million invested by GU Holding
- SEK 53 million generated by exits and then re-invested
- SEK 650 million of external investment has been attracted

Funded by:

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**European regional development fund.**
**Investing in your future.**
VERIFICATION FOR GROWTH FUNDING
GU Holding has been commissioned by VINNOVA to implement the first step of its national verification program. GU Holding is working in collaboration with the Research and Innovation Services and at the University of Gothenburg to identify research that may have commercial potential and help researchers apply for SEK 50,000–100,000 to support IP protection, commercial verification and risk mitigation activities. GU Holding aims to award at least 20 projects a year using this funding from VINNOVA.

A HIGH QUALITY PORTFOLIO
Good ideas from research are the foundation of all of the companies and projects in GU Holding’s portfolio. A constant flow of new business ideas from individual researchers and research groups who are keen to commercialize their research ensures that GU Holding’s portfolio constantly expands and becomes stronger. GU Holding works closely with several of the University’s strongest research environments and has created a number of commercialization platforms and companies to support these research environments. For example; Biomatcell AB was established to commercialize research from the BIOMATCELL VINN Excellence Center of Biomaterials and Cell which combines the expertise of materials science and medical devices, with state-of-the-art and emerging knowledge of biological components, including stem cells, for generating new scientific knowledge, product ideas and clinical therapies in the international fore-front of regenerative medicine. MIVAC Development AB was established to develop and commercialize novel treatments for autoimmune diseases. These platforms and companies have been a great success and 30% of the new companies and projects that enter GU Holding’s incubation process are from these platforms and companies. We are continuously developing new ones.

INCREASED NEED FOR STRATEGIC BUSINESS PARTNERS
There is increasing emphasis on the need to utilize and commercialize the research from the University. Researchers are becoming increasingly aware that although successful utilization and commercialization projects are very rewarding they are all also very demanding and they need the support of experienced strategic business partners, as well as the innovation support system, to help guide them through the utilization or commercialization process.

### Deal-Flow of Proposals

GU Holding is keen to work with all researchers at the University of Gothenburg and with research partners from other academic institutions, public actors and industry.
**INCUBATION PROCESS**

GU Holding offers an incubation process alongside its investment process. The incubation process includes activities such as commercial verification, goal oriented operative business development, financial management and educational programs. It also offers infrastructure and office space for companies in the early phase of development.

**GU HOLDING’S INCUBATION PROCESS**

Through GU Holding’s incubation process we drive and fund the development of a defined project plan and manage the IP associated with companies or projects. During the business development phase we formulate the business strategy, determine the goals, implement the business plan and perform many other crucial activities. We bring together innovators and entrepreneurs together to create a successful team. It is important for the team to develop the commercial plan with the company’s values and the best interests of the founders and GU Holding in mind. It is also important to identify customers and partners and to start creating markets and selling as quickly as possible. GU Holding attracts and negotiates with co-financers and actively manages the process of securing further investments. We are responsible for the presentation of the business plan to the board and co-financers.

**OUR OFFER**

We offer companies the help and support they need to ensure that their technology, know-how and IPR are appropriately protected. We perform market research to verify the customer need, establish relationships with potential customers and determine how the business risk can be minimized. We offer individuals within the companies and projects tailored training in professional sales, business development and many other areas to help them develop the skills necessary to meet the needs of the business and improve their business acumen. We also offer IT solutions, finance and administration services and access to a network of accountants, lawyers, marketing and communication agencies and other support organizations.

**Processes of incubation and investment**

- **Due diligence**
- **Pre-seed**
- **Seeding**
- **Start-up**
- **Pre-expansion**
- **Expansion**

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**Analysis**

**Pre-incubation**

**Incubation**

**Exit**
NEW INVESTMENTS
The main goal of GU Holding is to continuously make new investments that create growth and benefit society. The investments are made in companies and projects that offer innovative solutions to broad spectrum of problems. All new investments go through GU Holding’s due diligence and investment processes.

THE DUE DILIGENCE AND INVESTMENT PROCESSES
GU Holding’s due diligence and investment processes are developed for the early phases we work in. It’s a well-proven process that has resulted in many successful investments. The due diligence process begins as soon as GU Holding meets the researcher and learns about their idea and continues alongside the incubation process until an investment is made. GU Holding works with the researchers and its experts to evaluate the idea, identify intellectual assets and evaluate the business and market potential of the idea. The aim of the process is to identify the most promising proposals and then negotiate an agreement with the researchers regarding ownership. It is also very important that the researcher and GU Holding develop a good working relationship during the due diligence and investment process and share the same vision and goals.

SELECTION CRITERIA’S
GU Holding evaluates each investment on its merits based on the following criteria:
• Connection to University of Gothenburg
• Unique product or service with a high growth potential
• Reputable inventor
• Commercially interesting IP
• Scalability and ability to be internationalized
• Clear exit potential
• Ability to create an attractive market investment yield in return
• Shared commercial goals

FOLLOW-UP INVESTMENTS
Our portfolio companies often need follow-up investments to develop and to realize their full potential. GU Holding makes a number of follow-up investments every year. GU Holding always looks for sources of external funding as well as makes follow-up investments when other sources of funding are not available as our aim is to only invest when alternative funding is not available. GU Holding works closely with the other owners of the companies to ensure that all of the owners are aligned and happy with the business strategy.

PORTFOLIO COMPANIES ATTRACT SUBSTANTIAL CAPITAL
It is crucial for the portfolio companies’ to attract suitable investors to continue to grow. During 2012, the portfolio companies attracted almost SEK 43 million in capital, grants and loans.

GU Holding has well established relationships with many investors, including venture capital companies and funds, industrial companies and business angels, and is usually able to match its portfolio companies with suitable investors. It is also a part-owner in a seed capital company, Kaponjären, together with seven business angels.
THE PORTFOLIO STRATEGY

GU Holding’s portfolio strategy is designed in accordance with GU Holding’s owners directive. Although the owners directive does not place any specific return on investment requirements on GU Holding our goal is to make good long-term investments that benefit our shareholders and society and result in profitable exits. Exit opportunities are ‘few and far between’ so we try to take advantage of every opportunity we have to make a partial or full exit to enable us to increase our capital turnover rate.

EXIT FOCUS & DELIVERING DEALS

Our portfolio has grown in recent years and we have become more exit focused. We are always looking for new investors to take over our part in our more mature companies so that we can re-invest our capital in new companies.

Our investment managers are always looking for the right exit partners and have found partners in industry, the venture capital community, brokers and among the company’s partners and management.

Our exit focus has resulted in eight sales in the past two years. It is important to point out however that the exit focus has arisen as a consequence of GU Holding’s own decision and owners directives.

GU Holding aims to constantly re-invest its capital. GU Holding also intends to be a long-term partner as long as this is possible. We do not intend to sell our shares in our platform companies which support the University’s strategic areas but we may sell our shares in the companies they spin out in the future.

Our development strategy is based on a lean ideology. We prioritize activities which add greatest value in order to maximize the impact of our investments and the market value of our companies. We have developed a cost effective way to verify our business ideas and test the market’s interest and ability to pay which enables us to ‘fail cheaply’ minimizing the risk and maximizing the potential societal benefits. Some of our companies also adopt licensing business models.

GU Holding’s licensing strategy is very similar to our venture strategy. We make investments in our licensing companies to add value and enable us to develop relationships with industrial partners who are willing to pay reasonable license fees to co-develop our companies’ technologies. This minimizes the risk and maximizes the possibility of receiving a return within a short period of time enabling us to reinvest in new companies. This lean approach has been very successful and we have SEK 53 million from exits since start which has been continuously reinvested.

Verification for Growth

During our due diligence process we focus on a number of key areas (see figure) which enables us to identify the company or project’s core assets, evaluate the commercial potential of the company or project and establish an initial business strategy. Our due diligence process is very important as it enables us to make investment decisions and to create a business plan which can be presented to potential partners and investors.
GU HOLDING’S PORTFOLIO

GU Holding’s portfolio currently comprises over 45 companies and business projects in a variety of areas: Life Science, clean-tech, information and communication technologies (ICT) and services.

Our portfolio is very diverse reflecting the wide range of excellent research at the University of Gothenburg. Our portfolio companies and projects are at various stages of development and face a wide range of challenges. The structure and processes within GU Holding’s incubation process help our portfolio companies and projects successfully face these challenges and move on to the next phase in the incubation process. The companies and projects continue to benefit from the support and commitment of GU Holding as they grow and move through the incubation process because GU Holding continues to offer finance, business development support, networking opportunities and contacts as well as finance and administrative services. The incubation process is focused on value creation through development of the companies and projects. In 2012 the portfolio companies and projects had a combined turnover of about SEK 250 million and employed approximately 330 people.

ADMINISTRATIVE AND ACCOUNTING SUPPORT

GU Holding offers administrative and financial support services to the projects and companies it creates as well as transactional and management services. GU Holding’s finance department currently employs 6 people and supports 35 companies and projects. It provides the following accounting services; transaction administration, invoicing, payments, salaries and bookkeeping using professional accounting systems. GU Holding’s finance department also prepares annual, fiscal, VAT, tax and management reports including profit & loss accounts, balance sheets, budgets and forecasts on behalf of the companies and projects it supports.

### KEY FIGURES

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<td>Sales of shares, or full exits</td>
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Alzinova
Alzinova is a biotechnology company engaged in Alzheimer's disease drug discovery research. The company is committed to specifically targeting the elusive metastable primary drivers of this disease - the ‘oligomers’. Stable non-fibrillogenic mimetics of these endogenous toxic compounds form the core of Alzinova’s drug discovery platform which enables identification and evaluation of a range of potential oligomer targeting therapies.

BIOMATCELL
BIOMATCELL commercialises inventions in the fields of biomaterial science and cell therapy by licensing its inventions and creating spin-off companies. All of the inventions are based on research results from the BIOMATCELL VINN Excellence Center of Biomaterials and Cell Therapy. The research combines the expertise of materials scientists and medical device specialists with state of the art and emerging knowledge of biological systems. This combination generates new scientific knowledge, product ideas and clinical therapies that are at the forefront of regenerative medicine.

Biopix
BioPix develops and sells user friendly software for analysis of microscope images used in medical research. Scientist can obtain fully quantitative data from their research images using BioPix software. Customers include academic groups, networks and also pharmaceutical companies.

Cereduce
Cereduce has developed a number of improved strains of yeast for the fermentation process industry as well as the food and beverage industry. Its first product, AlcoFree™ yeast, has been metabolically engineered to produce high levels of biomass and negligible amounts of ethanol. This increases the yield of protein/biologics while reducing the need for process management. AlcoFree™ yeast is also being developed for the production of alcohol-reduced wines in collaboration with leading wine institutes around the world.
Cervrite

*Cervrite presents* a new, state-of-the-art conceptual solution stabilizing the neck after traumatic neck injuries like whiplash and other non-traumatic conditions. This new concept has the potential to replace all collars now used to stabilize the neck as it will provide the necessary stability and comfort while allowing beneficial, supported movement. Cervrite will market and sell the collar to hospitals and sell directly to patients.

Cewatech

*Cewatech’s technology* is a process which uses edible zygomycetes micro fungi to turn waste sugars and biomass into a number of valuable products resulting in a more profitable bio refinery process. Cewatech is currently developing a sustainable fish feed ingredient using the products of this process. Cewatech is also developing environmentally friendly superabsorbent materials that incorporate the products of this new process for hygiene and medical use which is also looks very promising.

Clean Dialysis

The need for dialysis to treat acute and chronic renal failure in developing countries and catastrophe areas is huge. Although the number of potential patients enormous the necessary resources are scarce. There are tremendous problems associated with the purchase and storage of dialysis equipment making traditional blood dialysis virtually impossible to provide in developing countries. Clean Dialysis is developing a novel technique for peritoneal dialysis which will offer patients in developing countries and catastrophe areas much better access to treatment.

CropTailor

*CropTailor combines* advanced biotechnology with traditional plant breeding techniques to develop new commercial crop cultivars with unique properties. The company focuses on oats and its business philosophy develop its products in close collaboration with the end user. The end result is a unique crop that is tailor-made to meet end users specific needs.
**Exocure**

InnoVitro is developing methods that will help the pharmaceutical industry harness the power of gene therapy. There is a great need for new DNA and RNA delivery methods as the power of gene therapy cannot be fully exploited at the moment as it is not possible to deliver DNA and RNA efficiently into cells. Exocure is developing an exosome based delivery method to solve this problem. The initial focus is treating cancer by preventing expression of the oncogene. Exocure will collaborate with pharmaceutical companies that are developing such gene-targeted therapies.

**InnoVitro**

InnoVitro will provide an animal free way of determining the sensitizing potency of chemicals based on the response of skin cell lines to exposure to the chemicals. An animal free alternative to the current gold standard LLNA mouse test is needed because testing cosmetics on animals is banned in the EU, marketing cosmetic products tested on animals is likely to be banned and REACH regulations are greatly increasing the amount of testing that is required. InnoVitro is creating a prototype and establishing industrial contacts.

**Larsson/Bergh Pharmaceuticals**

Larsson/Bergh Pharmaceuticals aims to develop novel therapeutics that prevent thrombotic events by stimulating the body’s own blood clot dissolving system. The main advantage of this unique therapy is that clots are specifically targeted so the therapy only acts on clots and does not affect the entire body. This minimizes bleeding complications which are a common side effect of currently used drugs.

**MetaboGen**

MetaboGen offers an advanced scientific platform that is based on data driven mapping of how gut microbiota affect metabolism. MetaboGen’s new research platform and MetaboGen AB, which was created to manage the IP and commercialization process, help the pharmaceutical and functional food industries develop their next generation of products. Today, MetaboGen is a world-leading hub in the field of metagenome research, targeting novel approaches for diagnostics and drug development based on the gut microbiota.
MIVAC Development

MIVAC Development develops and commercializes novel treatments for autoimmune diseases. The inventions are developed into commercially viable projects that can be spun out as separate companies, co-developed with external parties or licensed out. MIVAC Development owns two companies, Toleranzia & Alzinova. Toleranzia (www.toleranzia.com) develops tolerance inducing treatments with the potential to cure autoimmune diseases. Alzinova develops innovative therapeutics for treatment of Alzheimer's disease.

NemerPharma

NemerPharma will provide the pharmaceutical industry with a new economically and environmentally sustainable way of producing tetrodotoxin (TTX). TTX is a currently in phase III clinical trials as a treatment for neuropathic and cancer related pain. Today the only source of TTX is wild harvested puffer fish. This source of TTX is very expensive and unsustainable therefore the pharmaceutical company performing the clinical trials is in great need of an alternative source, which NemerPharma will fulfill.

Oncorena

1–2 people in Sweden die from metastasizing clear cell renal cancer every day. Globally the disease kills over 100,000 people a year. Currently there is no cure available for this Orphan Drug Disease and patients with metastases are expected to survive for less than a year. Recently approved pharmaceuticals prolong life but none of them have the potential to sure the disease. Five year survival is less than 20 %. Oncorena provides a curative solution.

Ortoma

Ortoma offers orthopedic surgeons tools that enable them to fully control and customize each operation and offer patients individualized treatment solutions. Using Ortoma’s cutting edge tools and technology surgeons can be in full control of preoperative planning and post-operative follow-up. The tools also enable surgeons to navigate more accurately during surgery. Use of the tools by surgeons results in improved medical outcomes for patients, clinics and society. Ortoma develops its products by combining the strengths of its academic team, technology and clinical users. It was founded by Dr Mats Andersson who successfully commercialized Procera within Nobel Biocare.
**Ostrea Sverige**

**Ostrea has been** developing large scale commercial cultivation of oysters on the Swedish west coast since 2006. The first step in the cultivation chain is to produce spawn from the oyster larvae. This step is performed in tanks on land and then the spawn are transferred to the sea where they develop into oysters. The company’s first cultivated spawn were transferred into the sea in 2010 and will be harvested in 2014. Ostrea will provide Oysters for European wholesalers and metropolitan cities all over the world.

**PExA**

**PExA is developing** a new device to diagnose and monitor respiratory diseases. The device contains a unique patent-pending non-invasive sampling technology that collects particles contained in exhaled air. The device is quick, simple and safe to use and the accuracy of the results is not affected by the patients’ effort when providing the sample. PExA aims to combine the power of its sampling device with validated biomarkers of disease to revolutionize the diagnosis, monitoring and treatment of chronic obstructive pulmonary disease.

**Tendera**

**Tendera develops** disposable point of care tests that enable accurate diagnosis of periodontal diseases leading to more effective treatment. Tendera also offers dentists the ability to detect very mild tissue destruction in the patient’s periodontal pockets caused by periodontitis and peri-implantitis even when there are no visual signs of disease. This enables early treatment and leads to much better outcomes for patients. A prototype has been developed and is now being tested in clinic.

**Strongbone**

**Strongbone is developing** a new potential treatment for conditions such as osteoporosis, rheumatoid arthritis and peri-implantitis. These diseases are all caused by high numbers of bone degrading cells called osteoclasts. Through the use of low molecular peptidylderivatives, based upon the active sites of cystatin C, the activation of osteoclast formation is inhibited and less osteoclasts are formed. In vitro studies have been performed and are being complemented with animal studies to establish proof of concept.
Surgical Science Sweden

Surgical Science is a global leader in medical simulation training and offers the only virtual reality laparoscopic system proven to improve the performance of surgeons in the operating room. The company develops high quality tools for training, assessment and certification of medical professionals. The cutting edge simulation tools have been developed based on the needs of the medical community. The tools have been shown to help surgeons build skills that can be easily transferred straight into the operating room and to enable safer surgeons to be trained faster.

SeaTwirl

SeaTwirl is a new technology to harvest offshore wind energy. SeaTwirl is based on vertical axis wind turbine technology, but it uses ocean or sea water as the roller-bearing and it can therefore be made of cheap and heavy materials. This means that it can be scaled up with less limitations. Sea Twirl can also store energy during fluctuations in wind speed and thereby generate electricity at a more constant rate than conventional wind energy.

Ultradese

Ultradese uses ultra dense deuterium as fuel in laser-driven fusion to generate electricity. The goal is to show that electricity can be produced safely and on an industrial scale. Researchers in the Department of Chemistry at the Faculty of Natural Sciences at the University of Gothenburg have been working on this for a long time and GU Holding has been actively engaged in its development since 2010.

Vigor Wave Energy

Vigor Wave Energy Converter is a new principle for harvesting ocean wave energy. The system is based on a floating hose that follows the waves and is filled with water batches that slide along the front of the wave and thereby build a pressure. A turbine converts the pressure to electricity. Vigor will be able to produce energy at very competitive prices. The goal is to build large wave power plants for major power companies in countries with suitable wave climate.
Blue Mobile Systems

Blue Mobile Systems delivers complete solutions to security companies. Its products increase the profitability of security guard companies by offering companies IT based operational support systems that can increase efficiency and improve the quality of the service offered resulting in greater competitiveness. The products work by seamlessly connecting administrative staff at the office, mobile patrols and the security guarding company’s end client which improves the service the security guarding company is able to offer its clients.

Innovidis

Innovidis has a number of patents within the field of Liquid Crystal Physics. The patents span from display technologies to Liquid crystal chemistry. The research and development has been supported by the LCD industry for several years. Innovidis will sell or license the patents to the display industry.

LC-Tec Holding

LC-Tec conducts advanced research and development of Liquid Crystal based products for a number of optical applications. The company specializes in the manufacture and supply of durable high-end liquid crystal based devices with outstanding electro-optical performance for use in tough operational environments.

Talkamatic

Talkamatic provides technology for building dialogue systems for use in vehicles, contact centers, automated telephone services and embedded solutions. The Talkamatic technology is based on world class dialogue research. This gives the dialogue system a high degree of naturalness and usability. Talkamatic is engaged in several development projects together with major car manufacturers.

Blue Mobile Systems: The Company was founded by Peter Andreasson and Rickard Farby in 2008 and is a spin-off company from the IT Research Institute within the Victoria Institute. Today Blue Mobile Systems has some of the most successful security companies as customers around the world.

Talkamatic: Talkamatic is currently developing a project together with Volvo Cars and the University of Halmstad called ‘Safe Speech by Knowledge’ which aims to develop a dialog system that can make the interaction between the user and the vehicle more efficient that by learning about the user’s habits. Fredrik Kronlid (to the left) has been the CEO of the company since 2008.
I-Tech

I-Tech’s business idea is to develop, manufacture and market anti-fouling substances and related technologies. The main customers are the paint industry, boat and ship owners, the chemical industry and other marine industry stakeholders. The company will develop the most effective technologies on the market by collaborating with the marine industry and performing innovative multidisciplinary R & D activities based on the needs of the marine industry. I-Tech will be a strategic supplier of biocide solutions for hard marine fouling.

Limited Company
sector Antifouling paints
ownership 1%
start 2000
contact Per Jansson
telephone +46 709-17 47 46
www.i-tech.com

Marine Biofouling Research i Göteborg

Marine Biofouling Research is a knowledge-based company. The company is owned by the scientists involved in the Marine Paint research program and GU Holding. Results and knowledge from the Marine Paint research program is collected in and owned by the company. The company has also an agreement with I-Tech AB.

Limited Company
sector Antifouling paints
ownership 30%
start 2008
contact Håkan Sterner
telephone +46 31-786 51 63
www.holding.gu.se

RoadIT

RoadIT is a research based company within the field of Intelligent Transportation Systems – ITS. By combining, processing and interpreting signals from vehicles and data from weather stations the company can supply drivers and the authorities with valuable and unique information about current road conditions and air quality. RoadIT will contribute to improved road maintenance leading to few accidents and a better environment.

Limited Company
sector Intelligent Transport Systems
ownership 30%
start 2012
contact Tore Sveälv
telephone +46 31-786 25 28
www.roadit.se

Uvis Light

UVIS Light’s business idea is to develop and sell energy saving lamps as well as other products based on field emission technology. It requires less energy while giving better light and clearer pictures in lighting elements as well as flat screens. Customers are initially within lighting in niche markets, such as hospitals and greenhouses. In the next step, the technology will be offered to consumers and for television producers.

Limited Company
sector Energy efficiency lamps
ownership 18%
start 2011
contact Gregory Carson
mobile +46 767-65 38 39
www.holding.gu.se
Botanical Analysis Group offers expert analysis of fungi that occur in indoor environments and plant pathology. The company analyzes mould and wood decaying fungi in bulk samples as well as airborne spores and hyphae in contaminated environments. It also provides plant disease diagnostics and advisory services to the horticultural industry and the authorities responsible for plant protection. The company also offers a tailored service to golf course greenkeepers comprising of turf pest diagnostic services and advice about integrated turf pest management.

GU School of Executive Education (GUSEE) designs and delivers customized management development programs to companies and their employees in the Nordic countries and notably Sweden as well as international customers. The company is regarded as one of the top suppliers of customised management development programs in the Nordic countries. GUSEE also designs and delivers an Executive MBA program that focuses on Asia.

Kaponjären is a company owned by GU Holding together with business angels with the sole purpose of investing in companies from the GU Holding portfolio. Kaponjären invests in companies where GU Holding has already invested and verified the business idea. The business angels who co-own Kaponjären often invest separately in companies that Kaponjären and GU Holding are investing.

Kocken och jag is a company which will be developed by the School of Business, Economics and Law at the University of Gothenburg during 2012 and 2013. The company delivers prepackaged grocery bags containing carefully selected ingredients and exciting recipes directly to the customer's door in the Gothenburg area. The groceries always hand-picked to maintain a high standard of quality and flavor and the recipes are developed in collaboration with a dietician to ensure that they offer customers a varied and healthy diet.
Board

The three board members all have leading positions at the University of Gothenburg.

**Margareta Wallin Peterson**  
Chairman of the Board  
Margareta Wallin Peterson is one of four Deputy Vice-Chancellors at the University of Gothenburg. She is responsible for issues regarding external relations and innovation efforts. She coordinates the innovation system actors within and around the university and has held several board positions. She is a professor of zoophysiology and has been the assistant dean at the faculty of Natural Sciences. She has been Chairman since 2006 and a member of the board since 2004. She was born in 1952.

**Jörgen Tholin**  
Member of the board  
Jörgen Tholin is head of administration at the University of Gothenburg since 2012. He was previously Vice-Chancellor of the Gotland University and Deputy Vice-Chancellor of the University of Borås. He has been a board member since June 2012. He was born in 1956.

**Lars Nilsson**  
Member of the Board  
Lars Nilsson is the head of the Finance Department at the University of Gothenburg. He coordinates and is responsible for the financial activities and administration of the University. He has been a member of the board since 2006. He was born in 1952.

**Advisory Board**

GU Holding works with a counselling group that functions as a sounding board in strategic issues. The group was created to give help and advice in terms of knowledge, experience and contacts.

**Lena Apler**  
CEO of Collector  
Lena Apler has a solid background in the banking and finance industry and started Collector in 1999. She has been the CEO of Securum Finance and worked at Bank Societe Generale Bank and SEB. Lena has been named the 25th most powerful women in Sweden by Business Week. She was born in 1951.

**Catharina Bäärmhlöm**  
Senior Project Leader for VP Obesity and GI projects at AstraZeneca  
Chatarina Bäärmhlöm has extensive experience in the pharmaceutical industry and has been a project manager in both the drug discovery and development phase and a line manager at a large research organization. Catharina is a pharmacist and has a PhD in pharmacokinetics and drug metabolism. She was born in 1952.

**Eva Halvarsson**  
CEO of Second Swedish National Pension Fund  
Eva Halvarsson is also a member of the board of the University of Gothenburg. She comes from a position as head of the Division for State Enterprises of the Ministry of Industry where she has been responsible for leading the management of the majority of the state owned companies since 2002. She was born in 1962.

**Bert-Inge Hogsved**  
Owner and CEO of Hogia AB  
In 1980 Bert-Inge and his wife Åsa founded the software company Hogia. Hogia now consists of 27 companies with operations in Sweden, Finland, Norway and the UK and has 540 employees. Bert-Inge is the company’s main shareholder and chief executive officer. He was a member of the Chalmers board of directors from 1994 until 2007. He was born in 1944.

**Björn Österlund**  
Senior Investment manager at SEB Venture Capital  
Björn joined SEB Venture Capital in 1999. He previously worked with the SEB Group since 1980 in a career that spanned leasing, project financing, international finance and relationship management. Prior to joining SEB Venture Capital he was a client executive with SEB Merchant Banking. He has been engaged in several start-ups within the innovation system. He was born in 1951.
Employees

Klementina Österberg  
CEO  
MSc in Business with experience in business development, financing, her own company, and the engineering and automobile industries. A member of the management group.  
Tel: +46 31-786 51 53

Håkan Sterner  
CFO, vice CEO  
MSc in Business with experience in financial and economic functions in listed companies and in the transportation sector. A member of the management group.  
Tel: +46 31-786 51 63

Jesper Dahlberg  
Business developer, investment manager and legal counsel  
MSc in Law with experience as lawyer and coowner of a law firm and a marketing company and managing positions in international companies. A member of the management group as head of capital and transactions.  
Tel: +46 31-786 55 30

Jenny Almkvist  
Business developer and investment manager  
Ph.D. in medical microbiology and immunology at the University of Gothenburg.  
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Roger Cederberg  
Business developer and investment manager  
Ph.D. in computer technology with experience of his own company, business development, sales and internationalization in the ICT sectors. Responsible for the exits focus strategy.  
Mobile: +46 733-63 10 75

Andreas Albertsson  
Business developer and investment manager  
MSc in Business with experience of his own company and business development. A member of the management group as head of strategic projects.  
Tel: +46 31-786 47 99

Björn Larsson  
Business developer and investment manager  
MSc in Engineering with strong international experience of sales, marketing and business development in pharmaceuticals, medicine and biotechnology.  
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Sara Pellmé  
Business developer and investment manager  
Ph.D. in inflammation medicine with experience of sales in the pharmaceutical industry.  
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Tore Sveälv  
Business developer and investment manager  
Ph.llic. in Biology with great experience of business development and leading positions in the marine area and the diagnostic and food sectors.  
Tel: +46 31-786 25 28

Gregory Carson  
Investment manager and senior advisor, capital and transactions  
MBA. Specialize in innovation companies growing internationally with over 18 years of experience in principle investing among other things.  
Mobile: +46 767-65 38 39

Lorna Fletcher  
Project manager and IP strategist  
Ph.D. in Chemistry with experience in the Technology Transfer Organization at Manchester University in the UK, where she has worked with IPR issues and commercialization.  
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Adrian Hedström  
Project manager in the cultural and creative industries  
MSc in Business with experience in the IT sector and an interest in innovation processes in the cultural and creative industries.  
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Isabel Fernandes  
Communication and project manager  
University studies in communication and Higher Vocational Education with focus in event marketing. Experience in the service sector.  
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Malin Linnell-Zovic  
Head of accounting and administration for parent company including group consolidation  
MSc in Business with experience from qualified accounting at a licensed accounting firm and through an own company.  
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Andreas Blom  
Head of accounting and administration for portfolio companies  
MSc in Business with experience from Ernst & Young as auditor in international businesses.  
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Johanna Hultgren  
Accountant  
Licensed accountant. Accounting and administration for portfolio companies. Experience from accounting of smaller companies.  
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Ewa Ekman Lindeberg  
Accountant  
Licensed accountant. Accounting for parent company and for portfolio companies. Experience from accounting in various businesses as consultant.  
Tel: +46 31-786 65 33

Sandra Vieweg  
Accountant  
MSc in Economics. Accounting and administration of portfolio companies as well as salary administration. Experience from accounting and administration of smaller companies.  
Tel: +46 31-786 69 36
CO-INVESTORS IN THE BUSINESS VENTURES

GU Holding places great importance on finding suitable investors to work together with and to hand-over more mature businesses. We currently have a broad network of business angels and more institutional investors with whom we co-invest and that contribute immensely to the development of the companies.

- AKT FUTURE
- ALMI FÖRETAGSPARTNER VÄST
- ASPERÖ HANDEL
- CAPMAN
- CHALMERS INNOVATION SEED CAPITAL
- CHALMERSINVEST
- CREANUM
- ENTREPRENÖRSKAPITAL
- INDUSTRIFONDEN
- INNOVATIONSBRON
- INNOVATIONSKAPITAL
- INVESTOR GROWTH CAPITAL
- JSM GROUP
- KAPONJÄREN
- K-SVETS VENTURE
- SAHLGRENSKA SCIENCE PARK
- SCANDINAVIAN LIFE SCIENCE VENTURE FUND
- SEDERMERA FONDKOMISSION
- THE SIXTH AP FUND
- STARTINVEST
- THE UNIVERSITIES’ HOLDING COMPANIES
- VINNOVA
- VOLVO TECHNOLOGY TRANSFER
- VÄSTRA GÖTALANDSREGIONEN
- VÄTTERLEDEN INVEST
- WEST CAP
- FOUNDERS, BUSINESS ANGELS, INDUSTRIAL COMPANIES AND OTHERS

AND TO OUR COLLABORATING PARTNERS

GU Holding regularly interacts with other innovation actors and service providers. GU Holding also has relationships with many external experts who provide a range of services including intellectual property protection, market research, sales and recruitment.

- AKZO NOBEL SURFACE CHEMISTRY
- ASTRazeneca
- AWAPATENT
- BJÖRN S ERIKSSON GRAPHIC DESIGN
- CHALMERS INNOVATION
- CHALMERS INDUSTRIETEKNIK
- CIP PROFESSIONAL SERVICES
- CONNECT VÄST
- ERNST & YOUNG
- THE RESEARCH AND INNOVATION SERVICES AT THE UNIVERSITY OF GOTHENBURG
- FRAMTIDENS FÖRETAG
- GÖTEBORGBIO
- ENCUBATOR
- HUTHWAITE INTERNATIONAL
- INNOVATIONSKONTOR VÄST
- INSTITUTE OF INNOVATION AND SOCIAL CHANGE AT THE UNIVERSITY OF GOTHENBURG
- KNOWLEDGE BASED ENTREPRENEURSHIP
- MANPOWER
- MARE NOVUM AT GOTHENBURG UNIVERSITY
- MELTWEBER GROUP
- NASSAU GUILD, USA
- NEWSDESK
- PALMGREN LINDWALL
- RINOSENSES
- SAHLGRENSKA SCIENCE PARK
- SWEDBANK
- SYNERGON
- SÖDERBERG & PARTNERS
- SWEDISH AGENCY FOR ECONOMIC AND REGIONAL GROWTH
- VENTURE CUP VÄST
- ABOUT 40 INDIVIDUAL CONSULTANTS

THANK YOU
FROM IDEA TO BUSINESS

GU Holding creates new jobs and growth by financing and developing new businesses and companies based on research results that come from the University of Gothenburg.

Together with researchers and co-investors, GU Holding takes research results “from ideas to business”.

GU Holding has financed more than 80 business ideas since 1995, where almost 60 companies employ more than 330 people and have a turnover of SEK 250 million.