

Informati -- on

Ascenion Information
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SurgVision: Making breast cancer surgery more precise

SurgVision is the second spin-off to build on ground-breaking imaging technology invented by Prof. Dr Vasilis Ntziachristos and colleagues at the Helmholtz Zentrum München. While the first spin-off – iThera AG – develops optoacoustic imaging technology for use in preclinical and clinical applications, SurgVision plans to introduce a new image-guided surgery solution for use in cancer surgery and other areas.

Live images of the tumour

The Groningen-based start-up was founded in August 2013 with the goal of providing surgeons with real-time visual guidance during surgery. Before surgery, the patient's tumour is specifically marked using intravenously administered, fluorescence-labelled antibodies directed against tumour markers. During surgery, a unique imaging system captures the fluorescence signals and transforms them into reliable live images that allow the surgeon to identify the tumour precisely and remove it more effectively than would otherwise be possible. Even tiny aggregations of tumour cells that would usually be overlooked can be spotted with the technique. Furthermore, the fluorescence signals can still be captured, even when the labelled cells are covered with body fluids or thin layers of healthy tissue.

Medical and economic advantages

'This has a number of benefits for patients and healthcare systems,' Ton van den Hoven, CEO of SurgVision, explains. 'First, the number of second surgeries could be dramatically reduced. About 40% of surgeries are incomplete as tissue is not completely resected, traditionally resulting in a second surgery. Secondly, the technology can help save as much healthy tissue as possible – which makes a huge difference for patients, especially in breast cancer, and reduces the need for subsequent plastic surgery. Third, the patient's prognosis is likely to improve with better removal of the tumour, because residual cells can eventually lead to local relapse or metastasis.'



SurgVision Team:
Ton van den Hoven, Chief Executive Officer
Lucy Crane, Clinical Coordinator
Ben Bijl, Research & Development Manager

Prototype in clinical trials

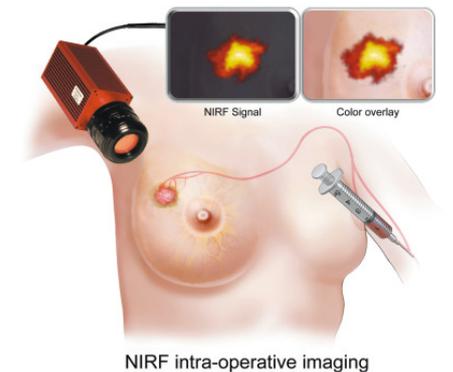
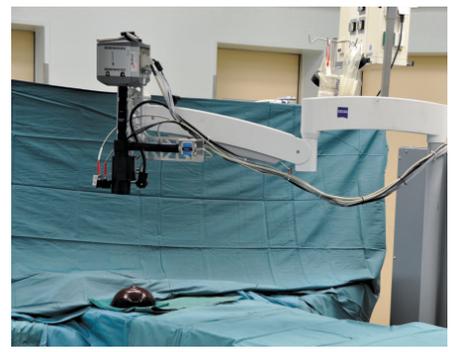
Mediated by Ascenion, SurgVision has obtained an exclusive license to the technology for use in clinical surgery. Over recent months, the teams of Prof. Ntziachristos at the Helmholtz Zentrum München and Prof. G.M. van Dam at the University Medical Center Groningen have jointly advanced the approach to prototype stage.

They have also attracted Roche as collaboration partner for evaluating the platform in breast cancer surgery using a fluorescence-labelled version of Roche's anti-VEGF antibody (Bevacizumab). A Phase I clinical trial including 20 breast cancer patients is already at an advanced stage. Additional indications are being explored.

Solid basis for growth

Seed funding has been secured from BioGeneration Ventures II BV and from DFZ Participaties BV, the investment fund of the Dutch Health Insurance De Friesland. SurgVision will use the proceeds to drive the clinical development of its approach and transform its three-person start-up into an integrated research and development organization.

A key milestone will be the establishment of a German subsidiary in the Munich area to drive research and technology development in close collaboration with the Institute for Biological and Medical Imaging at the Helmholtz Zentrum München and the Technical University Munich. Clinical development will be managed from the headquarters in Groningen, in cooperation with the Division of Surgical Oncology at the University Medical Center Groningen. By end of 2014, SurgVision intends to employ up to 10 people, most of whom will be based in Germany.



Ask the Inventor



Prof. Dr med. Thomas Thum

Director of the Institute of Molecular and Translational Therapeutic Strategies (IMTTS) at the Hanover Medical School (MHH)

Thomas Thum and his team at the IMTTS exploit new results from medical research to develop therapeutic strategies for clinical use. The group focuses on small ribonucleotide chains around 20 ribonucleotides long (microRNAs) that fundamentally influence the development and function of organs. Thum and his colleagues have detected raised concentrations of several different microRNAs that negatively affect disease progression in many cardiovascular conditions. Through the targeted blocking of microRNAs by microRNA-inhibitors, they were able to stop these damaging effects in a model system of myocardial infarction, improving the blood supply to heart tissue and its function following infarction. The team is currently preparing further studies in large animal models and comprehensive toxicological testing as a prerequisite for subsequent clinical trials. The concept is supported by positive results from first clinical studies of microRNA-based therapies seen worldwide in other

indications, for example hepatitis C. The IMTTS is doing pioneering work in the cardiovascular disease area. Apart from the therapeutic effects, the team is also investigating diagnostic applications. For example, specific microRNA-patterns in peripheral blood or other body fluids can be used to attain a more precise diagnosis and prognosis in a whole range of diseases.

My first experience of technology transfer was...

... while I was doing my Ph.D. at the Fraunhofer Institute for Toxicology and Experimental Medicine in Hanover. Due to the practical relevance of its research, the Fraunhofer Institute has a naturally close relationship to technology transfer. So from the very beginning I was used to asking myself if results might be patentable before I published them. Wherever I have worked since, I have always made contact with the relevant technology transfer

partners; for example here at the MHH with Ascenion. Together we have submitted 15 patent applications, and have recently applied for funding for a start-up.

What surprised me most...

... is the procedure, for example with a patent application. It's similar to submitting an article to a major scientific journal. You have to justify your claim and be prepared to defend it against questions until it is accepted. Many details were also new to me. For example, that with a PCT application you have up to a year to deliver new data. That kind of thing is interesting to know.

I think the biggest hurdle for technology transfer is...

... the lack of support from scientists here in Germany. Many scientists don't bother enough about the application and patenting aspects of their work. In the USA it's different. We really need to develop this here in Germany. In addition, marketing ideas to

industry is not always optimal. I've had very varied experiences here. Some technology transfer agencies could certainly help us scientists more when looking for the right contacts. I've got to know a few companies myself that are actively engaged in my area of research. And Ascenion is very helpful. Platforms such as BioVaria, for example, are excellent. We need initiatives like this.

My personal gain from technology transfer is...

... its practical value. I certainly don't believe that it will make me a millionaire. The biggest satisfaction would be to see how our own discoveries are transferred into

medical practice, thereby helping our patients. Cardiovascular disease in particular is on the increase worldwide, and is now the leading cause of death. We urgently need new therapies and diagnostic strategies. This is my main motivation.

If I could choose one project that would reach the market, it would be...

... for example miR-24. We have really good data from model systems. When you specifically block this microRNA after myocardial infarction, capillary growth increases in the affected tissue and heart function is maintained. Our vision for the future is that the medication is administered

to heart attack patients during the catheter examination or bypass operation directly into the affected tissue. Here it can lessen scarring, promote the regeneration of functional tissue and therefore prevent cardiac insufficiency in the long term.

Spin-offs in the spotlight

Clueda: Systems biology for market makers

Just a year ago, we reported that the Baader Bank was providing early-stage financing for Ascenion's portfolio company, Clueda. Now, this autumn, Clueda have presented their first products: 'clueda.trader', 'clueda.report' and 'clueda.research'. These analytic tools were created using insights from systems biology and can process millions of pieces of information from news streams, filtering out redundant information while revealing complex relationships.

And all in real time. The system has been in use at the Baader Bank since September, helping stock exchange traders with market analysis and providing high-quality information to support their investment decisions. It will shortly also be available to Bloomberg users as an app. The cooperation between Clueda and the Baader Bank was declared 'Best Big-Data Project' at this year's 'Best in Big Data' congress.



OMEICOS Therapeutics: new active agent in atrial fibrillation

The human heart beats 60 to 100 times a minute – on average about 42 million times a year. Occasional arrhythmias are not uncommon, especially in older people. Atrial fibrillation is the most frequently occurring arrhythmia, often described by those affected as heart racing or fluttering, and is sometimes accompanied by shortness of breath and anxiety. The main danger of atrial fibrillation, however, is that it can significantly increase the risk of a stroke or heart attack.

Scientists at the Max Delbrück Center for Molecular Medicine (MDC) Berlin-Buch (Dr Wolf-Hagen Schunck, Dr Dominik Müller, Dr Robert Fischer and colleagues), in close collaboration with Dr John Russel Falck at the University of Texas Southwestern Medical Center (UTSW), discovered a metabolic product of omega-3 fatty acids that has a stabilizing effect on heart rhythm.

They went on to produce synthetic molecules with a similar structure, and

systematically examined their effects. The results are encouraging: in model systems, the new synthetic agents significantly reduce arrhythmias such as atrial fibrillation in diseased hearts.

'This mode of action is completely new in cardiology,' explains Dr Katja Rosenkranz from Ascenion, who has accompanied and supported the team on the way to founding a spin-off. 'The medical and commercial potential is considerable, as all currently available treatments for atrial fibrillation are of limited efficacy and can lead to problematic side effects.'

The team has now founded OMEICOS to take on the professional clinical development of the approach, and make it available to cardiac patients. The spin-off is on the BioTech-Campus Berlin-Buch, in immediate proximity to the MDC and other companies working in the field. In the period leading up to the founding of the spin-off, the team was supported by technology transfer managers from the MDC and Ascenion. The initial funding raised in this crucial phase came from grants under the Helmholtz Association's support programme for spin-offs



(Helmholtz-Enterprise) and the MDC's GO Bio programme.

With its two CEOs, Dr Karen Uhlmann and Dr Robert Fischer, the company management has considerable experience in innovation management and clinical cardiology. Under their leadership, the

company was able to secure seed financing from the High-Tech Gründerfonds and the Berlin State's ProFIT-Programme. The team is currently putting together an investor syndicate for Series A investment, in order to finance the development of the technology up to clinical trials.

Networks

Contacts in Asia

During this year's STS-Forum and BioJapan meetings, Ascenion was able to extend and intensify its contacts in the Far East. Ascenion presented a poster at BioJapan, and held many prearranged partnering meetings with industry representatives. 'The meeting is developing in a very positive way,' concluded Dr Christian Stein, CEO of Ascenion. 'It is becoming much more international, and potential licensees now come to us with clearly defined requests. Pharma and biotech companies are showing more interest in expanding their product pipeline to include external projects.' Talks with universities interested in improving their technology transfer were also productive, and some follow-up meetings have already been arranged, for example with Kobe University.



European exchange

Together with other leading European technology transfer organizations, Ascenion is a host company in the ENTENTE professional exchange program, an EU project that supports technology transfer in the healthcare area.

Ascenion's first guest, Dr Nedeljko Milosavljević from the Center for Technology Transfer at the University of Belgrade, was in Munich for six weeks this autumn, where he had the opportunity to become familiar with the Ascenion's way of working in various different areas and projects.

'Being part of the Ascenion team was a great and rewarding experience in many ways. In a short period of time I have grown both personally and professionally. I learned how to extend and deepen my professional networks, not only in industry but also in technology transfer.' Through its involvement in the ENTENTE project, Ascenion is contributing to the professionalization and harmonization of technology transfer standards worldwide. The next guest has already arrived, this time from the Technology Transfer Office of the Institute of Organic Chemistry and Biochemistry AS CR in Prag.



Guest in the context of the ENTENTE professional exchange program: Dr Nedeljko Milosavljević

Transfer to industry

Together with technology transfer organizations from all over Europe, Ascenion is currently preparing the 7th BioVaria, which will take place in Munich on 6 May 2014. Commercially attractive life-science projects from academic research will be on offer to investors and licensees in the tried-and-tested interactive format. Industry representatives and investors particularly appreciate the breadth and quality of the projects, which was further raised last year through the introduction of a peer-review process.

'Nowhere else can you find so many high-quality offers and meet so many technology transfer experts and scientists from all over Europe,' says Dr Marcus Kostka, Director of Research Networking at Boehringer Ingelheim. Ascenion and its partners are considering including medical technology offers for the first time in 2014.

'There are many exciting projects arising from European research in this area, and a high level of interest from industry,' explained Esther Lange, BioVaria Coordinator at Ascenion.



Noteworthy

Partnership with KIT

Since last summer, Ascenion has also been supporting the Karlsruhe Institute of Technology (KIT) in transferring its research results into application. The collaboration is concentrated on the life-sciences field.



'Because our own commercialization focus is in the fields of engineering and physical science, we were looking for a specialized partner for the life-science area. Ascenion is a very good address,' Jens Fahrenberg, head of KIT Innovation Management Office, commented. KIT researchers will also benefit from dedicated technology transfer tools and networks initiated by Ascenion, including the BioVaria showcasing event, the Spinno-vator financing and support instrument for start-ups and the Biotech NetWorkshop for entrepreneurs.

VPM attracts partner for its TB vaccine



Ascenion's portfolio company Vakzine Projekt Management GmbH (VPM) and Serum Institute of India (SII) have closed a

license agreement providing the institute with the rights to develop and market VPM's innovative vaccine for the prevention of tuberculosis. The candidate was jointly developed by VPM and scientists of the Max Planck Society and the Helmholtz Centre for Infection Research (HZI). It is currently in Phase II trials. Ascenion was instrumental in negotiating and closing the deal. The agreement is a significant milestone in advancing the vaccine towards application. SII not only has the resources and expertise to develop the vaccine to its full potential, but also shares the partners' goal of making it available to people of all social classes around the world, at a fair price.

Innovation prize 2014 open for entries



For the seventh time, the German Bioregions will be rewarding especially innovative, patented and commercially promising projects from German life-science research. As previously, the Innovation Prize will be presented during the Deutsche Biotechnologietage. In 2013, the prize went to Prof. Klaus Brandenburg from the Research Center Borstel, one of Ascenion's partner institutes. We are happy to support scientists working at our partner institutes in entering for the prize. Please contact your nearest Ascenion Technology Manager. The deadline for applications is 31 January 2014.

From January: in the heart of Berlin

This New Year sees the opening of Ascenion's second Berlin office: in the Spreepalais, right in the city centre. The Helmholtz Association is also situated there, and the Leibniz Association headquarters are nearby. Our core team will remain in Berlin-Buch at the Max Delbrück Center for Molecular Medicine (MDC), and will continue to work in close cooperation with scientists there.

Calendar

ASTP-Proton Training Courses:
22–24 January, Leuven, Belgium

8th Biotech NetWorkshop:
12–14 February 2014, Tegernsee, Germany

Deutsche Biotechnologietage:
9 & 10 April, Hamburg, Germany

7th BioVaria:
6 Mai 2014, Munich, Germany

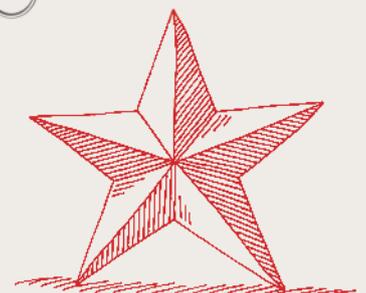
ASTP-Proton Annual Conference:
14–16 May, Oslo, Norway

Dear Partners and Clients,

Instead of sending Christmas cards this year, we have decided to make a donation to the Ambulatory Children's Hospice in Munich.

We'd therefore like to take this opportunity to thank you for the friendly teamwork, and wish you and your families a merry Christmas and all the best for 2014!

The Ascenion Team



Welcome to the team



Dr Julia Eschenbrenner joined our Berlin team as a Technology Manager in November, where together with her colleagues, she will be supporting

Ascenion's partners in the region. Before joining Ascenion, she worked as a scientist in the biopharmaceutical industry, initially at Cambridge Antibody Technology in Cambridge, UK, then at Schering AG (now Bayer Healthcare AG) in Berlin. Her work focused on the development of therapeutic

and diagnostic antibodies and tumour biomarker validation. She was subsequently visiting scientist with a teaching role at the TU Berlin, and a freelance reviewer for scientific journals.

Julia Eschenbrenner studied biotechnology at the TU Berlin and the Ecole Supérieure de Biotechnologie de Strasbourg, defending her PhD at the TU Berlin. In parallel to her professional activities, she also completed a course in industrial property law at the Fernuniversität Hagen.



Dr Petra Köhler joined Ascenion as a Technology Manager in October. Based in our Braunschweig office, she will support the Helmholtz

Centre for Infection Research (HZI) and the Leibniz Institute for Agricultural Engineering Potsdam-Bornim (ATB) in all aspects of technology transfer. Petra Köhler brings over 15 years of industry experience to the team. She previously worked as Head of Marketing for a manufacturer in the cosmetics industry, as CEO of a start-up company, and as Technology Manager at the patent commer-

cialization agency Brainshell. Most recently she worked at DECHEMA in Frankfurt for the Association of German Biotechnology Companies (VBU), where she established an online technology transfer platform and a webinar series on industrial property rights. Petra Köhler studied chemistry at Braunschweig, Marburg und Bologna universities, and gained a doctorate in microbiology from the University of Marburg. During her career she has also completed a course in industrial property rights from the Fernuniversität Hagen and a management training course at the TU Berlin.



Christine Uplegger has been supporting the accounts department in our Munich headquarters since August. She has many years' experience

in this area, working in various sectors and regions. She completed her training in wholesale and foreign trade in Freiburg i. Br.

Technology Offers

- [TO 01-00820](#) Conditional RMCE technology for simple and efficient genome editing
- [TO 15-00247](#) Methylation biomarker for response to monoaminergic antidepressants
- [TO 15-00240](#) Secreted miRNAs from cardiac fibroblasts as modulators of cell growth
- [TO 15-00241](#) Method for coating of solid phase substrates and lipid surfaces with a lattice-like clathrin structure
- [TO 15-00192](#) UL11 – a novel immunosuppressive protein encoded by human
- [TO 22-00019](#) IL-27 for treatment of excessive airway inflammation upon infection
- [TO 15-00123](#) New lead compounds for treatment of diseases caused by apicomplexan parasites
- [TO 15-00211](#) An Endosialidase specific for the capsular polysaccharide of *N. meningitidis* (meningococcus) serogroup C
- [TO 15-00302](#) Novel inhibitor of mutated IDH1 in cancer therapy
- [TO 01-00826](#) Novel far red fluorescent protein



Editorial

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