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Nord**

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**KNOW-HOW AND
CONTACTS**

**FROM BUSINESS
AND SCIENCE**

Issue 4/2007

COMMUNITY

EUROPEAN SCREENINGPORT

MISSING LINK IN DRUG RESEARCH

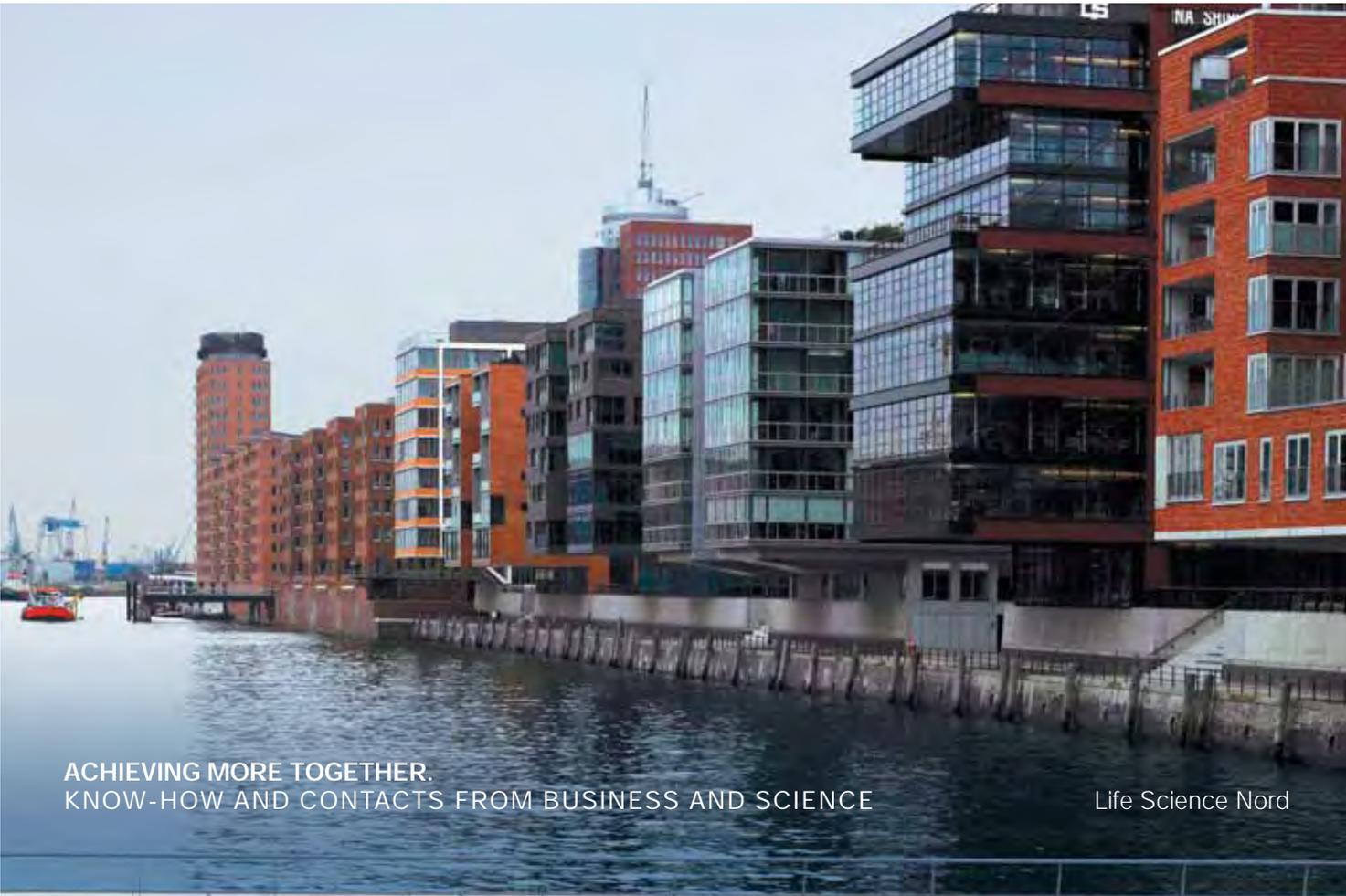
BUSINESS

VENTURE CAPITAL

INVESTMENT BRANCH DISCOVERS LIFE SCIENCES

METABOLIC DISEASES

**NORTH GERMANY AIMS TO BECOME
A FOCAL POINT FOR RESEARCH**



ACHIEVING MORE TOGETHER.
KNOW-HOW AND CONTACTS FROM BUSINESS AND SCIENCE

Life Science Nord



Hamburg

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Coastal Research & Management is extracting collagen from jellyfish.

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North Germany

Hamburg and Schleswig-Holstein will become a center for research in the field of metabolic diseases.

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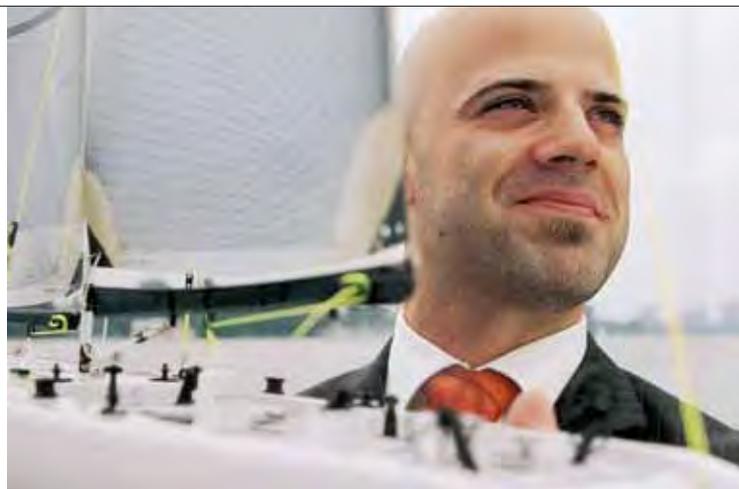
Hamburg

The European ScreeningPort closes the gap between academic research and industrial exploitation.

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> **Dear Readers,** A stiff breeze and the waves of the North Sea and the Baltic Sea are part of North Germany. Given the latest developments in North German life sciences, one thing is clear – there's something in the air! In September, the European ScreeningPort, the new center for European drug research, opened its doors in Hamburg. In the future, academic researchers and the pharmaceutical industry will jointly develop drugs for new medicines.

Researching and developing new medicines and therapeutic ideas are also at the heart of a further project in which North Germany aims to establish itself as a leading region in translational research. North German scientists will develop therapeutic forms for the major diseases such as age-related diabetes.



The investment sector has now also discovered the crucial importance of the healthcare market. Bankhaus Wölbern in Hamburg, which is associated with the former Evotec founder Prof. Dr. Heinrich Maria Schulte, has now launched the first life science fund for private investors and forecasts high growth rates in this sector. As more and more forceful and entrepreneurially-minded discoverers work in this region, North German life sciences are advancing rapidly.

The Life Science Nord team hopes you enjoy reading this issue and wishes you every success at BioEurope.

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White biotechnology in the north
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The money returns

In the last few years, venture capital has become markedly scarcer in the biotechnology sector. In particular, investors have shunned start-ups. However, the future of VC does not appear as gloomy as first impressions suggest

Hamburg > Now and then, money appears to have a mind of its own. Sometimes, it is forceful, rushing ahead and euphorically following new paths regardless of losses. At other times, it is easily scared and timid: it avoids errors made in the past, fails to take advantage of opportunities and is unreasonably hesitant.

The biotechnology sector and venture capital offer examples of such behavior. While large amounts of venture capital were directed into young businesses and start-ups in the boom times, the flow today has turned into a trickle in relative terms. The former euphoria has given way to caution. Is the sector in danger of losing important risk capital, and is its long-term future therefore in doubt?

At a superficial glance, one could indeed gain this impression. In 2006, the flow of venture capital into biotechnology companies dropped by 35 percent compared to the preceding year. While VC providers invested 565 million euros in German biotech businesses in 2000, the amounts fell to just 213 million euros in 2006. By contrast, the number of biotechnology companies in Germany has remained virtually flat at 350. As venture capital accounts for some 50 percent of equity financing, this permits conclusions to be drawn on companies' equity base: cover has become thinner. Funds are also flowing in other directions. In the meantime, in addition to IT businesses, medical technology firms are receiving more VC than the biotechnology sector. Moreover, start-ups in particular have been hit as VC

fund flows have dried up. »After the collapse of VC funding in 2002 and 2003, not one single start-up was funded with risk capital in 2004,« states the 2007 German Biotechnology Report. The approach of investing cautiously only in more mature firms could mean that new, innovative ideas never even have the chance to get off the ground.

To counter this problem in seed funding, the High Tech Gründerfonds was set up in 2005. The aim is to provide about 300 technology-oriented start-ups with up to 500,000 euros each in initial financing. In a follow-up financing round, a further 500,000 euros can be granted from the fund. However, these funds are not sufficient for businesses developing technology platforms or drugs. In such cases, large investments are required over long periods to translate ideas into products. This in turn means that bigger amounts and private VC providers are needed.

Millions invested in biotechnology

However, despite all the negative trends in the VC market for biotechnology firms, there are also positive signs. It appears that investors are re-discovering the sector. New biotech and life science funds are being launched and new avenues are being explored in VC funding. In an interview with the magazine »Going Public«, Dr. Helmut Schühlsler, managing partner at TVM Capital, reported that a number of VC funds are currently in the fundraising stage and will close within the next two years. Private persons such



INTERVIEW Philip Frerichs

Above-average growth rates in the biotech segment

Philip Frerichs is head of the private equity product division of Wölbern Group. Acquired last year by Prof. Heinrich Maria Schulte, Wölbern Group has just launched its first life science fund. Fund specialist Philip Frerichs is the lead manager in this investment

What arguments favor an investment in biotechnology firms in your view?

The need for prevention and new therapies is rising. In recent years, biotechnology companies have posted the highest growth rates worldwide. Expiring patent protection and weak pipelines are slowing the growth of many pharmaceutical companies. As a result, pharmaceutical firms and financial investors are increasingly acquiring young biotechnology firms that have innovative and promising prod-

ucts. All these factors ensure above-average growth rates in the biotech segment.

What investment strategy are you pursuing with your funds?

Our current fund targets life science venture capital investments in the U.S. North America is the most significant life science market worldwide in terms of size, innovation and liquidity. There are excellent opportunities for experienced investors, and with MPM Capital we believe we have found such an experienced partner.

What is special about your fund model?

With »Private Equity 02 Life Science« we offer our investors an innovative hybrid fund model with an investment in MPM BioVentures IV and additional co-investment opportunities alongside MPM Capital. Co-investments shall consist only of portfolio companies where MPM Capital has already invested. We expect that investors will invest indirectly in a portfolio of 20 to 25 life science companies from early to late stage venture capital. While co-investments require more support, they are especially interesting from a returns point of view, as there are no further management fees or profit splits for the partner fund on these co-investments.

A further feature is that MPM BioVentures IV has already been subscribed for. For one thing, this increases transparency for investors and, second, it improves the chance of earlier returns, as the investment activity has already begun.

as SAP cofounder Dietmar Hopp are also investing millions in biotechnology. Hopp believes that life sciences will be the »next great success story in the high-tech segment.« To date, he has invested some 200 million euros in 14 life sciences businesses.

Another person who is well acquainted with the sector is turning to biotechnology VC funding. Evotec cofounder Prof. Dr. Heinrich Maria Schulte wants to increase his exposure to life sciences as a provider of risk capital through Wölbern, the private bank he has acquired in Hamburg. With a volume of 32 million U.S. dollars, Wölbern Invest AG has launched the first private equity hybrid fund for private investors – »Private Equity 02 Life Science.« The hybrid fund concept provides for an investment in a target fund and additional equity investments. The minimum investment is 25,000 dollars.

The pharmaceutical company Novartis has also designed an interesting model. Through its 200-million-dollar Novartis Venture Fund, the Swiss company takes an initial 100,000-dollar stake in young biotechnology firms and invests a total of up to six million dollars in the business. In return, it receives an option to in-license promising drug candidates on previously agreed terms. After lead optimization, the completion of the preclinical stage and during the first clinical study, it may exercise this option. In this way, Novartis can profit from the drug research of biotechnology start-ups and the founders obtain urgently needed equity.

SHORT NEWS

Lammers Medical Technology

FLOOD OF ORDERS FROM THE U.S.

Lübeck > Lammers Medical Technology supplies six MR diagnostic incubators

The medical engineering company LMT Lammers Medical Technology has won a large order from the U.S. to supply six MRT-compatible incubators.

The MR diagnostic incubator serves to examine prematurely and newly born babies in magnetic resonance tomographs (MRT) and is the only product of its kind since its launch. The special feature is that LMT has managed to combine the totally different conditions of the incubator and MRT regarding electronics, magnetic behavior, mechanics and thermodynamics in order to eliminate mutual disruptive influences. Of the 20 systems currently in use worldwide, seven are in the U.S. Following the major order now received and including the outstanding installations, the United States will have a market share of 50%. One of the customers is the radiologist Professor James Barkovich from the University of California San Francisco (USCF), a well-known expert in MRT-based examinations of neonates.

Further information: www.lammersmedical.com

Strathmann

ACQUISITION OF STRATHMANN BIOTEC

Hamburg/Budapest > Richter and Helm acquire shares and change company name to Richter-Helm BioLogics

Gedeon Richter, Budapest, has acquired 70% and Helm AG, Hamburg, 30% of the shares of Strathmann Biotec GmbH & Co. The company name was changed to Richter-Helm BioLogics. Since 1997, Strathmann Biotec has been part of the Strathmann Group and a subsidiary of Strathmann GmbH & Co. KG, a mid-sized pharmaceutical company in Germany.

Services include the development of production strains for recombinant proteins and plasmid DNA, cGMP cell banking (MCB, WCB) and cGMP manufacturing for clinical trials and commercial supply.

The acquisition covers a state-of-the-art biotechnological plant, laboratory R&D and pilot plant capacity. The number of employees at three locations, i.e. Hamburg, Dengelsberg and Hanover, is 81. Richter and Helm will use the existing capacities to continue and expand the contract development and manufacturing business and to establish a biopharma pipeline by worldwide in- and out-licensing.

Further information: www.richter-helm-biologics.eu

NEWS Planton

Capital increase at Planton

Imladris GmbH acquires a stake in the biotechnology company

Kiel > Much earlier than expected when the company was founded, the Kiel-based biotechnology firm Planton has now been able to carry out a significant capital increase, thanks to the acquisition by the Darmstadt investment company Imladris GmbH of a stake in the company. This means that Planton can now enter the clinical research phase and come closer to developing marketable products.

The Kiel-based PLANTON GmbH, which was established in 2001, has developed a process

to obtain antimicrobial peptides (AMP) from plants. The goal is to use these substances as anti-infectiva in cases in which conventional antibiotics are no longer effective. A special production system ensures that the antimicrobial peptides can be manufactured in an especially efficient and low-cost manner. Planton possesses the patents and licenses for a number of promising drug candidates.

Imladris GmbH, named after the house of the half-elf Elrond from the »Lord of the Rings«, is an asset management company associated with the entrepreneur Immo Ströher. In the past, it has focused mainly on solar and energy companies. Planton plans to use the fresh capital not only to develop drugs, but also to further expand the bioanalytics service sector. This includes molecular genetic analyses for forensic medicine, the food and animal feed industries and plant breeding.

NEWS Proteo

Elafin: Marketing in the Middle East and Africa

Proteo and Rhein Minapharm conclude licensing agreement

Kiel/Cairo > Proteo Biotech AG has entered into a licensing agreement with the Egyptian company Rhein Minapharm SAE on the clinical development, production and marketing of Elafin. Under the agreement, Rhein Minapharm will receive the exclusive marketing rights for the anti-inflammatory protein substance in Egypt, the Middle East and Africa. In return, Proteo Biotech AG will receive an upfront payment, milestone-related payments and royalties on net production sales. In addition, Minapharm will assume responsibility for funding clinical research in this region. The agreement provides for the transfer of the biotechnological production process of Elafin to Cairo. This process, based on the production of elafin in *Hansenula polymorpha*, is a yeast technology licensed by the Langenfeld-based ARTES Biotechnology GmbH.

Elafin is a protein that is produced naturally in the skin, lungs and mammary glands, and protects the tissue in which it is present from destruction by



Photo: Proteo Biotech

Ms. Birge Bargmann, CEO Proteo Biotech AG, Dr. Wafik Bardissi, CEO Rhein Minapharm and Prof. Oliver Wiedow, Chairman of the Board Proteo Biotech AG

the immune system. Elafin's property of blocking enzymes involved in inflammation reactions makes it a highly promising active substance for the treatment of pulmonary inflammatory diseases or severe reperfusion injury. For example, the interrupted flow of blood after a heart attack, accident injuries or organ transplantation can be restored. In a clinical phase I study, the excellent tolerability of Elafin was demonstrated.

Further information: www.proteo.de, www.minapharm.com

Collagen from jellyfish

Coastal Research & Management is using jellyfish to supply raw materials for medicines and cosmetics

NEWS CRM

Kiel > Coastal Research & Management (CRM), known for its research into natural marine substances, and O'Well GmbH, known as a producer of algae-based cosmetics and wine, have discovered a new source of collagen. The team, headed by marine biologists Dr. Inez Linke and Dr. Levent Piker, extracts the coveted protein from common jellyfish (*Aurelia aurita*) from the Kiel Fjord.

Collagen is the most common form of protein in the human body. It provides stability in cartilage, tendons, ligaments and skin. The extracted collagen is used, among other things, in the food industry in the form of gelatin. However, many cosmetic products are also enriched with this wonder substance, whose fibers possess greater tensile strength than steel and promise to make skin tauter. In the medical field, collagen is used to treat cartilage wear. In the past, the material has mainly been obtained from pig skin, cattle bones and horse tendons. However, since the appearance of the animal disease BSE (if not before), this type of collagen has caused uncertainty and aversion among users. As a result, the Kiel researchers came up with the idea that the coveted substance could also be obtained very successfully from jellyfish. In accordance with the joint vision of CRM and its sister company O'Well GmbH of making natural marine substances available to people and at the same time adhering strictly to the principle of sustainability, jellyfish were an obvious subject for research.

Jellyfish offer a clear advantage compared to land-based vertebrates; the collagen obtained from them is guaranteed free of BSE. In addition, the

jellyfish extract can probably provide a considerably more effective contribution to the healing of cartilage damage than comparable products based on cattle and pigs, as Piker, along with natural scientists and doctors from the University of Lübeck (Prof. Dr. Holger Notbohm), has discovered. Cartilage cells require a stimulating environment to grow. To this end, collagen matrices are already used in orthopedic surgery as a frame for supporting tissue. If cartilage in the human body is to possess the elasticity approaching the natural state, it has to correspond to collagen type II. Jellyfish protein appears to meet these requirements perfectly.

In the meantime, the extent of the healing potential of jellyfish collagen is matched by demand. The researchers therefore intend to obtain the sought-after substance in the future not only from German waters. Off the Israeli coast, another type of jellyfish, *Rhopilema nomadica*, which was probably brought from the East African coast by ships through the Suez Canal, has spread and become a nuisance for tourists. There are up to 160,000 of these creatures in an area of one square kilometer. The jellyfish, which can be up to 80 centimeters in size, can inflict unpleasant injuries on swimmers. The Israeli government would therefore be grateful if the Kiel marine researchers were to reduce the plague of jellyfish in this useful way. Besides being economically valuable, such a development would also make sense ecologically.

Further information: www.crm-online.de, www.o-well.de

SHORT NEWS

Asklepios

ASKLEPIOS SETS UP A SCIENTIFIC BOARD

Hamburg > Private clinic chain awards research funds

The first scientific advisory board of a private clinic chain in Germany has been set up at the Hamburg Asklepios clinics. The board, consisting of nine chiefs of staff from various specialist fields who work at Asklepios clinics throughout Germany, discussed applications for private funding at their first meeting at the beginning of September. These funds will be provided by the Asklepios clinics in Hamburg to their doctors over the coming years. A seven-digit sum will be made available. Applications from the following research areas are represented: cardiology; urology; heart surgery; leukemia; vascular surgery. Besides somatics and psychosomatics, there are also research projects on preventive work relating to children and young people and their social behavior. Asklepios is one of the leading international clinic chains. The group is responsible for about 100 facilities, over 30 day clinics, 21,000 beds and 35,000 employees in Germany, Europe, the U.S. and, in future, China. The Hamburg Asklepios clinics alone employ some 11,000 people.

Further information: www.asklepios.com

Fraunhofer Institute

SECOND FRAUNHOFER INSTITUTE IN SCHLESWIG-HOLSTEIN

Lübeck > New institute specializing in cell research will be established by 2013

Besides the Fraunhofer Institute for Silicon Technology in Itzehoe (ISIT), Schleswig-Holstein will soon have a further one operating at the interface between science and business. In Lübeck, a Fraunhofer Institute specializing in cell research will be established by 2013. It is planned to build up stem cell banks for comparative investigations and as test systems for the pharmaceutical and cosmetics industries in the Fraunhofer-Gesellschaft's new facilities in Lübeck. Further fields of application are cell, tissue and organ restoration in regenerative medicine, including possible implant developments for heart muscles, skin, nerves and other vital organs. In addition to the medical focus, the new institute will consider opportunities for commercializing the use of cell cultures of aquatic organisms, e.g. the various cell types of bony fish such as herring and trout.

Further information: www.fraunhofer.de

Small particles with huge opportunities

25 years ago, all the nanoresearchers in the world would have been able to sit around Prof. Dr. Horst Weller's modestly sized conference table. »There were about five scientists worldwide researching into nanoparticles at that time,« recalls Prof. Weller. »We came across totally new effects,« he adds, meaning that nanoobjects possess physical and chemical properties that are not observed in larger objects

A pioneer in nanoparticle research, Prof. Dr. Horst Weller is equally fascinated by life sciences and biochemistry. They have now become integral parts of his research

PORTRAIT Prof. Dr. Horst Weller

Hamburg > Examples are metals which, on a smaller scale, become semiconductors or insulators. Nanoscale particles of totally unspectacular substances such, as cadmium telluride, fluoresce in all the colors of the rainbow, while others convert light into electricity. Prof. Weller adds with a smile: »As a young scientist, you didn't have to read much literature, you carried out a few experiments and were then able to publish straight away.« Today, the pioneer in nanoparticle research works at the Institute of Physical Chemistry at the University of Hamburg. In addition, he has been scientific director of the Hamburg Center for Applied Nanotechnology (CAN) for the last two years. His list of publications has in the meantime swollen to over 200, and today he is one of the 25 nanoresearchers most cited by colleagues worldwide.

Life science enthusiast

Even though Prof. Weller was fascinated by the basics of the chemistry and physics of nanoparticles at the start of his career, he fairly soon had an inkling of the first application aspects. »At the time of the second oil crisis, we were examining whether plant photosynthesis could be replicated artificially using semiconductor particles,« says Prof. Weller. With his team, he then produced the first solar cells from nanomaterials.

A subject from biology – photosynthesis – was an early part of his work schedule. But today Prof. Weller is still surprised how nanotechnology turned out to be a cross-sectional science in the following years. »I never expected that I would become so integrated into biochemistry and life science,« he says with amazement and

evident enthusiasm. For the last three years he has been developing contrast agents on a nanotechnological basis with UKE radiologist Prof. Dr. Gerhard Adam.

For example, ultras-small ferrous-oxide particles are used in magnet resonance tomography. They serve to diagnose vasoconstrictions or to distinguish between benign and malignant liver tumors. Weller emphasizes: »Here, cell changes of just three millimeters can be shown.« He adds: »Our goal is also to use nanoparticles to advance into even smaller dimensions, to watch cells at work, and to open up new therapeutic opportunities.« He has his sights set on nanobased polymers which form small hollow spheres. The chemist reports that »these could be loaded with drugs in the future.« Looking ahead, he says that »if we also succeed in attaching to the surfaces of these vehicles specific antibodies that only dock onto tumor cells, we would have an ideal means of transport to place appropriate medicines in the body in a targeted manner.« To be equipped to meet these future challenges, Prof. Weller opened a new cell biology laboratory at CAN a few months ago. There, the toxicity of nanoparticles is tested and the transport routes and interactions of nanoparticles with various cell types are examined.

»With the aid of nanotechnology we will reach a point where we will understand the functions of cells at the molecular level and, as a consequence, will also be able to influence them in a targeted manner,« forecasts Prof. Weller. He concludes thoughtfully: »This will also throw up ethical questions – what can science do and what should it be allowed to do – and we will have to answer these as well.«



Photo: Stefanie Herrmann



Photo: Stefanie Herrmann

30 million people in Germany are extremely overweight. Obesity and age-related diabetes are the major common diseases. Predisposition starts at an early age

SPECIAL Metabolic diseases

Getting to grips with metabolic diseases

North Germany aims to establish itself as a leading life science region in translational research. One goal is to research and develop new drug and therapy concepts for the major common diseases such as age-related diabetes, a widespread metabolic disease

Hamburg/Schleswig-Holstein > The problem is increasing – literally. More and more people are suffering from obesity (adiposity). And more and more people are developing diabetes mellitus type 2 (T2D) – age-related diabetes. This is not by chance, as obesity and the risk of developing this form of diabetes are related. In Germany, at least 10 million people suffer from T2D or are affected by »pre-diabetes«. Some 30 million are extremely overweight, while ten million have metabolic disorders which require treatment and which in some cases could develop into a T2D disease. Diabetes is a life-threatening disease. Diabetic patients are subject to a heightened risk of suffering a heart attack, stroke, becoming blind or having a leg amputated.

It has been proved that obesity is an important risk factor in the genesis of T2D. »Adiposity amplifies an existing reduced insulin sensitivity and results in insulin resistance which is closely related to the develop- >



Photos: Stefanie Herrmann

An unbalanced diet based almost exclusively on burgers and other fast food is one of the most common factors triggering metabolic diseases

ment of metabolic disorders. A T2D disease may be the result.« This is how Prof. Dr. Ulrike Beisiegel, Director of the Institute of Biochemistry and Molecular Biology II at the University Medical Center Hamburg-Eppendorf describes this connection.

In the future, the aim will be to develop medicines, therapy programs and preventive measures that counter metabolic disorders and thus the degree of T2D. New research approaches such as translational research are called for. Only if scientists and industry work closely together on the basis of state-of-the-art equipment will it be possible to deal with the common disorders of obesity and T2D as quickly as possible.

From molecule to disease and back

Before the disease can be fought on a sustained basis or even prevented, it first has to be understood. Accordingly, »from molecule to disease and back« is the approach with which scientists initially want to study the physiological and medical processes and interrelations of age-related

diabetes and obesity in order to finally develop effective drugs and therapies and provide ideas on prevention. Prof. Dr. Dirk Müller-Wieland, chief of the First Medical Department of the Asklepios Clinic St. Georg in Hamburg, explains: »Individual, targeted prevention presupposes that the early genesis of the disease at the molecular level and the environmental factors favoring the disease are known.«

On the basis of current research, T2D is a multifactorial disease, which usually affects people around the age of 40, and is frequently linked to obesity. A further factor is genetic predisposition to T2D. Studies show that single-cell twins living in different environments will both develop a clinically manifest T2D with a high degree of probability. This means that hereditary predisposition determines the risk of being affected by the disease, while the breakout of the disease is promoted by environmental factors such as nutrition. So far, diabetes research has concentrated primarily on glucose metabolism. In the future, the role of lipid metabolism will also have to be examined more closely in this connection.

However, it is not just metabolic pathways in the so-called body periphery – for example at the level of fat cells (lipocytes), the liver or skeletal muscles – that play a role in the genesis and maintenance of diabetes. Scientific and clinical interest is focusing increasingly on the brain, as many metabolic signals, such as messengers that are produced by the fat cells, are detected and interconnected by certain areas of the brain. Of particular significance in this regard is the effect of peripheral hormones such as insulin and leptin, which normally convey to the body a sense of being full through their effect in the brain, and thus contribute towards maintaining a normal weight. One of the main goals of the working group under Prof. Dr. Hendrik Lehnert, Director of the First Medical Clinic at the University of Lübeck as of November this year, is to understand why so-called insulin and leptin resistance arises in the brain under the conditions of obesity – in other words to find out why the effect of these hormones of creating a feeling of fullness is weakened. Prof. Lehnert says: »As we now know that these processes contribute very considerably to a further increase in body weight, identifying target structures in the brain, which could be a point of attack for therapeutic measures, is also an immensely significant subject.«

Focal point of research for metabolic diseases

Thanks to the close and complementary cooperation of these working groups and clinics in Hamburg and Lübeck, it will be possible to create a focal point for research in the field of metabolic disorders in North Germany that will radiate far beyond the region. This cooperation will provide groundbreaking results, and hopefully new therapeutic ideas will be found especially on the links between fat metabolism and diabetes on the one hand and hormone effects in the brain and obesity on the other. Prof. Lehnert emphasizes that »these areas are currently among the most important research themes worldwide.«

With scientists such as Prof. Müller-Wieland, Prof. Beisiegel and Prof. Lehnert North Germany as a life science region has the necessary expertise to establish research activities into T2D and metabolic change of international significance. The researchers have carried out considerable work on obesity and on the change in fat metabolism in connection with resistance to insulin, in part in cooperation with companies such as Lilly GmbH, Merck, Sharp & Dohme, AstraZeneca and others in Germany.

In their investigations, they have demonstrated that a key phenomenon in the interplay between metabolism and insulin resistance is the concentration of fat in tissues outside the subcutaneous fat tissue – for example in skeletal muscles and the liver (ectopic fat storage). The scientists see this as a starting point for further research into T2D and its genesis. They pose the following questions. How is the absorption of food fat in the liver after digestion (post-prandial phase) regulated and what is the role of insulin? What role does the quality of food fat play in the regulation of gene expression in tissues that are relevant for insulin resistance? What lipoprotein-associated markers are there for insulin resistance? What role does the transcription factor SREBP play, first, in ectopic fat storage in the liver and other organs and, second, in the development of insulin resistance?

The answer to these questions goes far beyond basic research and its academic benefit. It involves ideas for new medicines and therapies as well as preventive measures. Only those who understand the processes can combat the disease and, ideally, prevent it. The goal is to find new drug targets and develop effective substances jointly with industry partners. New meth-



Together with a healthy diet, regular exercising is essential in preventing metabolic diseases

ods and diagnostic tools will have to be developed and clinically evaluated. New imaging methods will have to be applied and cell systems, animal models and clinical cohorts will have to be made available to screen for diabetes drugs. In addition, on the basis of the new knowledge, risk persons can be identified with biomarkers and informed that they could possibly be affected. This is the starting point for preventive ideas.

The research work of North German scientists represents a potential »crystallization core« around which translational research structures can be developed. In a network of university and non-university working groups, tasks can be dealt with jointly, while scientists can exchange views and raise new questions on the basis of the knowledge gained. This first requires the creation of the necessary infrastructure in terms of equipment, facilities and personnel.

Future research work in North Germany could help ensure that metabolic diseases can be treated more effectively in the future.

Bridging the gap
between academia
and industry:
drug research with
state-of-the-art
screening
technology



Photo: Evotec

STORY [European ScreeningPort](#)

The missing link – found(ed) in Hamburg

Since September, Hamburg has been home to the »missing link« in European drug research – the European ScreeningPort – which closes the gap between academic research and industrial exploitation

Hamburg > Marketplaces have a good tradition in Hamburg. The new European ScreeningPort represents a special kind of marketplace in the Hanseatic city. Drugs – and hence the medicines of the future – will be systematically sought after and efficiently found there.

ScreeningPort represents a link between academic research institutes and the pharmaceutical industry – the »missing link« in European drug research. The ScreeningPort platform is a catalyst which will accelerate the process of developing knowledge from basic research to new, marketable medicines. It will combine the research of universities with the requirements of industry to the benefit of everyone. It is only when the structures for translational research are created with institutes such as ScreeningPort that European pharmaceutical research and the European pharma industry will remain interna-

tionally competitive in the future. This is not a matter of scientific prestige, but of economic value added and jobs.

Unique scientific-medical network

»ScreeningPort is an important element for the pharma initiative for Germany,« explained parliamentary secretary of state Thomas Rachel from the Federal Ministry of Education and Research at the event marking the foundation of ScreeningPort on September 3 in Hamburg. The aim of the pharma initiative is to make new and innovative medicines available to patients faster than at present. The Ministry of Education and Research is providing 800 million euros to the pharmaceutical initiative. It is supporting ScreeningPort as an important part of this initiative by providing 1.9 million euros for research projects.

ScreeningPort was founded as a public-private partnership between the Free and Hanseatic City of Hamburg and Evotec AG. Two further companies – c.a.r.u.s. IT AG and PerkinElmer, Inc. – are already willing to participate in ScreeningPort. Using Evotec's strong scientific expertise and infrastructure, it offers its academic customers access to state-of-the-art high-throughput screening technologies, validated substance libraries, natural products and biological substances, as well as a bioinformation system with a correspondingly comprehensive evaluation of data. ScreeningPort adapts the biological test systems (assays) from the academic environment to industrial screening with the aim of delivering interesting results (hits) for the pharmaceutical and biotechnology industries. »ScreeningPort, together with the academic and industrial partners, represents a unique network of scientific and medical expertise, technological know-how and industrial performance,« emphasizes Kathrin Adlkofer, managing director of Norgenta North German Life Science Agency GmbH. The company has played a major role in assisting the project as cluster manager for Hamburg and Schleswig-Holstein, thus being responsible for the structural development of the North German Life Science region.

Two projects will start this year; 15 projects a year are planned by 2009. In the initial phase, ScreeningPort has received financing of more than seven million euros. This is money well invested since, as the Hamburg Minister of Science Jörg Dräger says, this is after all the place where »in future researchers can develop the drugs for the medicines of tomorrow.«

Photo: Evotec



Photo: GBF/Bierstedt



Science versus industry: Dr. Erich Greiner, Chief Innovation Officer Evotec AG (left) and Prof. Dr. Rudi Balling, President of the Society for Genetic Engineering (right)

INTERVIEW Drug research

Drug research in Europe

With the foundation of ScreeningPort, a new era of drug development is starting in Europe. The European way – compared to the American – is discussed by Dr. Erich Greiner, Chief Innovation Officer Evotec AG and Prof. Dr. Rudi Balling, President of the Society for Genetic Engineering

How do you rate European drug research compared for example to the United States?

Balling: Overall, drug research in Europe is at least as good as in the U.S. in many cases. Our strength clearly lies at the start of the development pipeline – in other words discovery. We can point to a large number of highly promising new drugs and target structures. However, critical mass is generally lower.

Greiner: Pharmaceuticals is a global business. The »European« companies such as Glaxo-SmithKline, Sanofi-Aventis or Novartis are true global players. The difference between the European and U.S. industry is in the number and size of small and mid-sized biotechs. These companies can be considered the drivers for novel technologies and innovation as they bridge the gap from academic science to pharmaceutical companies.

In which areas is European drug research in the lead? Where does it lag behind?

Greiner: From a helicopter perspective, pharmaceutical research and development in Europe is competitive to the U.S. The differences are in the detail. For example, in the U.S. there is significantly more philanthropic money available for the development of drugs for neglected infectious diseases such as HIV or TB. In Europe, and in particular in North Germany, however, we have world-leading academic and clinical institutions in this field such as HZI (Helmholtz Centre for Infection Research), HPI (Heinrich Pette Institute), Bernhard-Nocht-Institute and MHH. Building intelligent academic-industry partnerships to translate this research faster into pharmaceutical products can make a difference.

Balling: We are clearly leading in basic research. Internationally, our work in functional genome analysis, chemistry or in the development of animal models is highly competitive. This will in any event ensure that the pipelines start to be-

come replenished again. However, in Europe it still takes too long for the results of basic research to be translated into applications. Frequently, there is also a lack of efficiency, because our clinical research is not ideally organized.

How do you assess the European pharmaceutical industry commercially? How can existing obstacles between academia and industry be overcome?

Greiner: The pharmaceutical industry is under continuous pressure to increase productivity and produce novel drugs. The blockbuster drug strategy that sustained the industry in the 1980s already started to erode in the 1990s. Many companies were not able to sustain their product pipelines by internal research and development. The changing marketplace dynamics, the complex requirements of the drug discovery process and the limitations of academia have created the need for a new model to bring important therapies to the market.

Balling: In my opinion, this problem of insufficiently filled pipelines can only be resolved by closer cooperation with academic partners. However, the academic side will have to standardize its research and manage it more professionally in order to meet industry's quality requirements. There are also hurdles in financing. In Europe, the »translation gap« is virtually unfunded. It is very difficult to obtain phase I financing for a project from academic research. One reason for this of course is that we are just starting to build the infrastructure for translational research.

Clinical genetics with a high scientific standard

Since 2001, the Hamburg-based BioGlobe GmbH has offered a broad spectrum of services in the field of clinical genetics for academic and industrial research and development. The company is actively engaged in the evaluation and development of biomarkers and new diagnostic applications

Hamburg > BioGlobe has established a molecular diagnostics laboratory, which is embedded in a network of joint projects with physicians and hospitals, and offers a large number of DNA-based genetic tests with a special focus on molecular endocrinology and oncology. Mass spectrometry is used by BioGlobe as one of the tech-

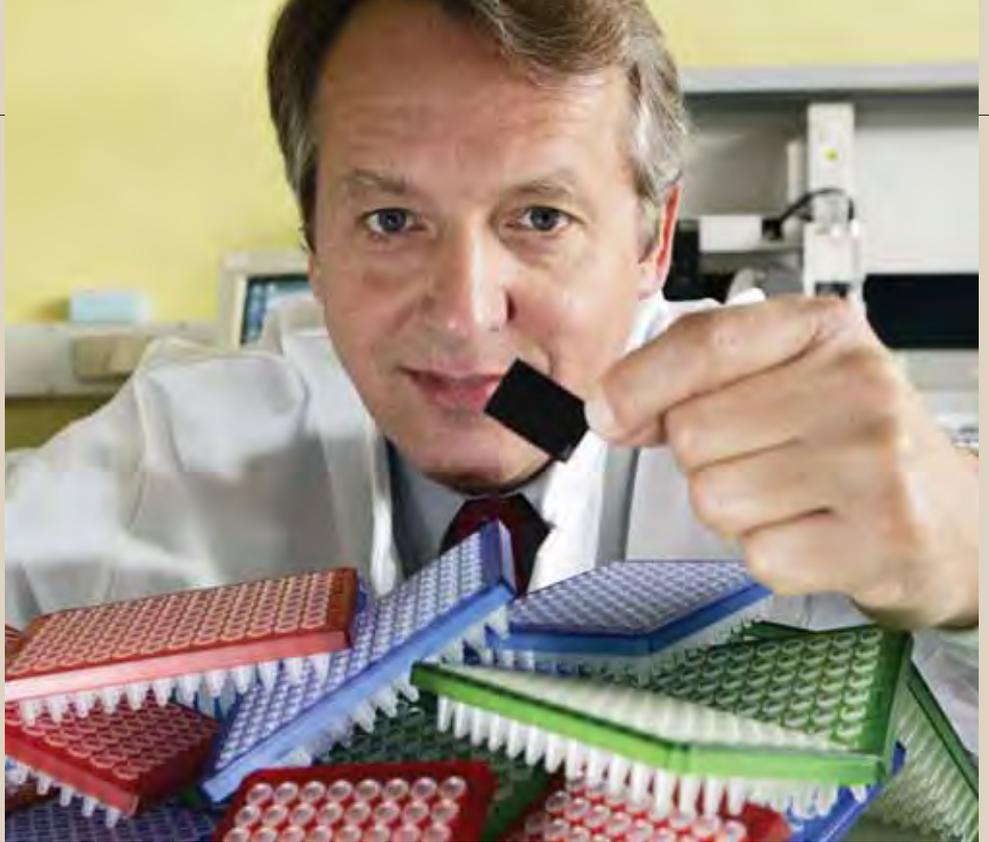


Photo: Roland Magunia

Dr. Wolfgang Höppner, BioGlobe's CEO, with the microplate for 96 DNA samples

nologies for its service lab. For research projects SNP genotyping, allelotyping, expression analysis and SNP discovery are offered as routine methods based on Sequenom's MassARRAY® system, MassEXTEND® (hME) and Mass-CLEAVE™ (hMC).

Supported by a government grant, BioGlobe has validated hMC as a new method for resequencing in molecular diagnostics. It has proved to be a high-performance platform that efficiently and precisely measures the amount of genetic target material, determines known variants in

genes and detects pathologically relevant mutations. BioGlobe has demonstrated that the system is able to generate reliable and specific results, even from complex biological samples and also from trace amounts of target material.

This label-free technology can be automated and downscaled to save samples and reagents, and to minimize cost and labor. BioGlobe's current activities are focused on the development of commercial diagnostic kits based on this technology.

Further information: www.bioglobe.net

Bridging the gap between preclinical models and patients

Indivumed GmbH promotes the individualization of cancer therapy

Hamburg > As a basis for developing molecular drugs and companion diagnostics Indivumed has established a unique infrastructure with leading clinical cancer centers. This, together with the most stringent SOP criteria for biospecimen and clinical data collection, provides an exceptional basis

for biobanking. It has resulted in the establishment of a biobank and database that is internationally recognized as the »gold standard«. Clearly, Indivumed's tumor biobank has the highest possible biospecimen quality with complete sample sets for each patient (tumor + normal tissue, serum, plasma, PBMC and urine) and the most comprehensive clinical information (+ follow-up).

The combination of this biobank, the capability to access daily numerous new cancer patients, and a research team working in state-of-the-art facilities provide a sound basis for development of drugs and companion diagnostics.

Indivumed offers industrial partners access to its biobank and clinical resources. The service includes target identification/validation and

biomarker discovery on a contract research basis. Indivumed's research service is built around an automated (immuno-)staining service for target validation (e.g. phosphoprotein expression), gene expression studies (e.g. cDNA microarray) and a comprehensive proteomic platform for biomarker discovery (e.g. MALDI-TOF/OF-MS) utilizing its high quality tissues. For drug development and discovery of predictive biomarkers, Indivumed has established a drug test platform based on short-term cultivated primary cancer cells and tissues which, with comprehensive patient data and instantly archived tissues, serve to study drug response and to develop companion diagnostics in clinically meaningful patient samples.

STORY Norgenta



Experienced sailors on board:
Life Science Nord team on an America's Cup yacht
during the Port of Hamburg's celebrations

New image film – Life Science Nord sets sail

A new image film showcases North Germany as a young, dynamic location for life science businesses. Fittingly for Schleswig-Holstein and Hamburg, the scenes were shot on board an America's Cup yacht

North Germany > In the approximately 10-minute film, which Norgenta – the North German Life Science Agency – has produced as part of its marketing activities, North Germany is portrayed as a dynamic location for biotechnology, medical technology and the pharmaceutical industry. The skills available in the various segments are demonstrated on the basis of company profiles. The linking elements are scenes, action and images from sailing, which is traditionally associated with Hamburg and Schleswig-Holstein, and which can also be ideally transferred to the world of business.

The new image video will be used in marketing activities for the Life Science Nord re-

gion at international trade fairs, and on delegation trips and other occasions. The image film may also be disseminated online and through multipliers and the media.

The sailing scenes were shot on an America's Cup yacht during the celebrations marking the birthday of the Port of Hamburg. Experienced sailors on board the yacht included Norgenta's managing director and former sailing world champion Dr. Kathrin Adlkofer and Evotec CEO Jörn Aldag.

The Norgenta partnership program enabled the film to be made. Thus, numerous companies from North Germany supported the international marketing of their region.



Photo: cag media

INTERVIEW **Bionamics**

Finance and project management for biotech assets

Kiel-based bionamics GmbH is an asset management company that sources, develops and commercializes high-potential life science projects. The founders, Dr. Timm-H. Jessen and Walter J. Thomsen, speak about their missions and visions

What is your mission and your competitive advantage?

We want to bridge the gap between excellent drug research projects and the pharmaceutical industry's need for clinical development programs. Our advantages are our flexibility, focus and structure: the ability to quickly adapt to changing industry

needs with just-in-time decision making and to select project-specific partners with specialized expertise as and when needed.

Which is your special expertise and what are your special services?

With our solid background, both in finance and

science, we want to generate win-win situations for inventors and investors. We keep an eye on the IP positioning and make funds available to develop the project into the next value phase. Both this process and the marketing activities are managed in close cooperation with the inventor. Investor, inventor and bionamics share the revenues.

What are your plans for the near future?

We are going on a road show across Germany and Europe at the end of 2007 to provide information on our new combinations of creative asset financing and project-specific drug development. We are currently assembling a top team, and early 2008 will mark the start of our operations.

Further information: www.bionamics.com

STORY **Altonabiotec**

Hamburg-based Altonabiotec AG, specialist in protein expression and cell line development, has enlarged its product portfolio and now also offers high-sensitivity assays for molecule concentration and interaction

New assays based on Insight Analyzer

Hamburg > Measuring binding constants for protein-ligand interaction and determining concentrations in the nanomolar range can be a problem. Altonabiotec has a solution: thanks to Evotec Technologies' Fluorescence Intensity Distribution Analyzer (FIDA), changes in the brightness, color and mobility of single pairs of

interacting molecules, using highly diluted samples, can be detected. Altonabiotec uses this feature for the determination of binding constants and concentrations of labeled proteins, as well as for the quantification of fluorescent moieties bound to particles. Altonabiotec's service unit provides recombinant proteins, cell

lines and transiently transfected cells for R&D in academia and pharmaceutical companies. The young company, located in Hamburg-Eppendorf, specializes in demanding projects and fast solutions.

The employment of the FIDA Analyzer enables the development of a broad range of functionality assays. The Altonabiotec team offers FIDA-based assays as part of protein or cell line development, but also develops and performs customized assays according to customers' requirements. This service allows customers access to high-end technologies without the need for major investments.

Further information: www.altonabiotec.com

INTERVIEW **Ascenion**

Intellectual property asset management

Ascenion advises public life science research institutes on all aspects of intellectual property asset management. Technology Scout at the Hamburg subsidiary, Dr. Hinrich Habeck, explains the focus of activities

For which institutions is Ascenion currently working?

We are the exclusive partner of 12 life science institutes in the Helmholtz and Leibniz Associations and the Hanover Medical School, and market around 600 patent families, together with a range of research materials, e.g. antibodies or animal models.

What kind of services does Ascenion offer?

We identify and evaluate commercially attractive inventions and materials. We accompany the patenting process, develop commercialization strategies, find industrial partners and negotiate

licensing agreements. Additionally, we coach and advise start-ups on the road to independence.

What are your activities in Hamburg and Schleswig-Holstein?

With our office in Hamburg I have close contact to the inventors at Bernhard-Nocht Institute, Heinrich-Pette Institute and Research Center Borstel. I scout new technologies and directly support the inventors in all aspects of IP management. Our services can also be offered to other institutions in the region.

Further information: www.ascenion.de

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STORY Evotec

A tremendous milestone for EVT 201

Evotec has conducted a new study for its lead product, EVT 201, with patients suffering from primary insomnia. The results of Study 2004: with the insomnia drug EVT 201 it is possible to help patients get to sleep quickly, improve their sleep throughout the night and avoid residual effects in the morning

Hamburg > Study 2004 was the first study where EVT 201 had been tested in patients with primary insomnia. Previous clinical studies of EVT 201 had been conducted with healthy volunteers kept awake with road traffic noise.

During the study, conducted in the U.S., patients attended specialist sleep lab centers for two nights and were given two doses of EVT 201

and placebo in a random order. Throughout each night patients were monitored by polysomnography (PSG), a measurement of EEG brain waves used to objectively determine duration and quality of sleep.

The key points of interest derived from the PSG analysis were:

- The total duration of sleep during the night (Total Sleep Time, TST)
- The total duration of time people were awake once they had already got to sleep (Wake after Sleep Onset, WASO).
- How quickly patients fell asleep (Latency to Persistent Sleep, LPS)

EVT 201 produced highly statistically significant results on all these key measures.

While currently used insomnia treatments fail to adequately treat maintenance insomnia, it was surprising to see a very good effect of EVT 201 in helping people to sleep, even in the second half of the night.

Whereas the objective PSG measures such as TST, WASO and LPS are an absolute requirement in assessing how well an insomnia treatment works, patients' subjective assessments are also very important. It is usually the only measure the doctor has to go on. In Study 2004, EVT 201 produced a dramatic improvement in how patients rated their night's sleep. Of patients receiving the placebo, 59% reported »poor« or »very poor« sleep. When patients received 2.5 mg EVT 201 this was reduced to 21%, with 79%



Photo: Evotec

Evotec's insomnia drug EVT 201 produced a dramatic improvement in how patients rated their night's sleep

of patients reporting a »good« or »very good« night's sleep. Also, patients reported no residual sedation effects, which is a problem for drugs with longer half-lives.

The excellent results of this trial are the first evidence in patients that the pharmacology and pharmacokinetics of EVT 201 translate into a superior treatment for insomnia. While EVT 201 works at the same receptor site as many current therapies, it produces a different profile of modulation because it acts as a partial agonist. This may have a number of advantages in the clinic, including limiting side effects at higher doses and reducing tolerance and dependence which can result in rebound insomnia.

Further information: www.evotec.com

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STORY PLS-Design

New ways to cure insect venom allergy

PLS-Design, which develops novel modified recombinant allergens for improved specific immunotherapies, has obtained a grant from the Hamburg Innovation Foundation

Hamburg > Approximately one-quarter of the population in Europe is sensitized to insect venoms, and 4-5% of the population could potentially suffer severe reactions after insect stings, including life-threatening anaphylactic shock condition. The only curative approach is specific immunotherapy (SIT), where the patient receives frequent subcutaneous injections of slowly increasing dosages of insect venoms. Despite the known health risk, many patients abandon SIT due to the frequent occurrence of allergic side reactions and the inconvenience of multiple injections over a long period. By developing recombinant allergens and generating

hypoallergenic molecules, the Hamburg-based biotechnology company PLS-Design aims to minimize the risks of allergic side reactions and reduce treatment time. Patient compliance is expected to be much higher. Moreover, such hypoallergenic molecules might even allow high-dose allergene vaccination with long-term effect. This would be a completely novel therapy concept. PLS-Design was recently awarded a grant of 520,000 euros by Hamburg Innovation in recognition of the scientific concept and the commercial potential of the company's allergy drug development program.

Further information: www.pls-design.com

PORTRAIT Provecs Medical

Getting up at the crack of dawn

Today, people requesting drugs based on gene transfer technology receive answers like:

»If you wait a few decades, doctors may have them for you.«

However, the founders of the Hamburg-based Provecs Medical did not wait, but got up early

Hamburg > Very early, indeed. Three years ago, they put together all the pieces of a complex process, wrote a business plan, raised money and set up a team to introduce their gene-transfer-based new cancer immunotherapy into clinical practice. With fewer than ten people and supported by a highly experienced network of consultants, scientists and physicians, Provecs

Medical is on the way. Founded in 2005 and operationally active since 2007, it is financed by the High-Tech Gründerfonds (Bonn), Peppermint Financial Partners (Berlin) and by R&D funds provided by the Hamburg Innovation of the City of Hamburg. It is located at the University Medical Center Hamburg-Eppendorf (UKE). Provecs Medical develops its patented technol-

ogy and covers the processes of preclinical development, regulatory affairs and early clinical development. Special regulatory issues, GMP production and CRO knowledge are provided by an established network of contract partners. Investors are invited to join this exciting project and face the dawn – and the day of novel cancer therapy.

Further information: www.provecs.com

STORY CTC North

In 2006 the newly founded Clinical Trial Center (CTC North) started its activities at the University Medical Center Hamburg-Eppendorf (UKE)

Clinical trials at the highest quality level

Hamburg > The CTC North was set up as part of MediGate GmbH, a UKE subsidiary, as a response to the growing demands of regulatory authorities for the documentation of clinical trials – especially after the 12th amendment of the German Medicines Act (Arzneimittelgesetz), and the EU Directive on Good Clinical Practice. With its 26 beds (six of which are equipped with con-

tinuous cardiovascular monitoring) and its infrastructure tailored to the demands of the regulatory authorities, CTC North unifies the services of a commercial CRO with the broad medical spectrum of a large university hospital.

In the first 12 months of its activities, numerous studies have been carried out, ranging from investigator-initiated trials to multicenter trials

funded by the BMBF (German Federal Ministry of Education and Research) as well as industry-sponsored trials with investigational new drugs. CTC North is involved in protocol development, application for regulatory permits, conduct of trials in collaboration with specialists from the various medical disciplines, monitoring services, and the logistics of coordinating multicenter trials. An experienced team with a background in commercial CROs and in the academic setting work together in CTC North; separate departments for quality assurance, study management, data management, and recruitment were established as a unique feature in a university hospital.

Further information: info-ctc@uke.uni-hamburg.de

STORY Eppendorf

Successful cooperation

The Hamburg-based biotechnology company Eppendorf AG has cooperated with University Medical Center Hamburg-Eppendorf (UKE) since January 2006. Many joint projects – including one involving the Institute of Tumor Biology – have already been successfully carried out

Hamburg > An example of how synergies can be successfully realized is the combination of Eppendorf AG's technical know-how with the research work undertaken at UKE. Under the cooperation arrangement, Eppendorf AG provides UKE with laboratory equipment and technical, applicative support for certain research work.

The Institute of Tumor Biology at University Medical Center Hamburg-Eppendorf is carrying out research work, among other things, to detect and characterize potentially metastasizing tumor cells from blood or bone marrow samples. For this purpose, the Eppendorf TransferMan NK 2 micromanipulator is used with a CellTram vario to isolate and then transfer individual cells from a sample. With the aid of this equipment, high-precision work on cells under a microscope is possible. The following characterization of the

isolated cells at the molecular genetic level takes place by means of real-time PCR (polymerase chain reaction) in Eppendorf's Mastercycler ep realplex4 S. The entire work process is carried out with Eppendorf pipettes and Dualfilter TIPS.

In recent years, it has been demonstrated that the detection of these tumor cells in blood and bone marrow offers new prognostic parameters for carcinoma of the breast (breast cancer). These cells can be detected at a very early stage, even before the lymph nodes are affected.

The latest findings show that the probability of being affected again by a carcinoma within a shorter period is greater if these tumor cells can be detected in blood or bone marrow samples. This correlates with a reduced overall survival period. Accordingly, detecting tumor cells at such an early stage could also have an effect on therapy in the future and enable treatment to be



Photo: Eppendorf

Successful technical and scientific cooperation between Eppendorf and UKE

arranged more effectively and above all to start it earlier. The concept underlying this cooperation agreement and some of its results will be presented at this year's Medica in Düsseldorf (November 14-17).

Further information: www.eppendorf.de

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- Dr. Jörg Sahlmann - Head of Clinical Operations



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INTERVIEW Olympus Winter & Ibe

»New Wave« – the flexible factory

The endoscope manufacturer Olympus Winter & Ibe is changing over to a production system driven by customer demands. Managing director Heinz Jacqui talks about the challenges in connection with the implementation of the new supply chain management system

What was the reason for starting the pilot project?

Olympus Winter & Ibe's range covers 2,500 different products. Some of these, for example endoscopes or surgical instruments, may be ordered only once a year. We have to deliver even such minute quantities to our demanding customers quickly and at a reasonable price.

How did you deal with production and delivery in the past?

In the past, we anticipated from the sales side what was required in the market. To satisfy cus-

tomers wishes faster and more flexibly and to meet strict criteria on production and storage costs, we needed a new production system.

What did your »New Wave« pilot project entail?

We do not manufacture an item until we have a customer order. To ensure that our customers do not wait for weeks for their product under this customer-driven manufacturing method, we had to redesign the entire supply chain – from supplier and preproduction to final assembly and the delivery processes. It was important to involve all departments in the company, since the new structure affects not only production, but also logistics, sales, quality assurance, the HR department and controlling.

This process certainly involved a great deal of time and effort?

Implementing the new system was indeed not easy. We arranged workshops with lots of staff from all levels and departments to define the optimal process. In a pilot project with urological endoscopes, we then tested the new procedures and built up trust among all participants.

In view of the huge effort and costs, do you regret introducing the new production method?

We have reduced our throughput times from more than 30 days in the past to five days at the most, lowered inventories by 35% and cut our



Heinz Jacqui, Managing Director Olympus Winter & Ibe, introduced a new supply chain management system

Photo: Christian Brinkmann

production costs by more than 10%. So »New Wave« was in any event the right decision. We will now extend the idea to all production areas.

Further information: <http://www.olympus-owi.de>

PORTRAIT CCS Cell Culture Service

The cell makers

The on-time availability of cell-based assays has become a decisive factor in screening and drug development. As an external cell culture provider, Hamburg-based CCS offers custom-made cell assays, ready for instant use

Hamburg > CCS Cell Culture Service was established in 2000 from an interdisciplinary team with the idea of enhancing the use of cells for the identification of new drug entities. Cell-based assays are widely used for high-throughput drug screening bringing about the challenge of in-time cell production and scale-up. As a flexible external cell culture unit, CCS is dedicated

to making screening faster and more efficient. It offers the custom-made generation of recombinant cell lines expressing a target protein of interest and develops reliable and significant assays. In addition, CCS produces and provides recombinant proteins, membrane preparations and cells for instant use in the drug screening process. The use of frozen cells for cell-based

screenings has been shown to be a valid alternative to fresh cells from a growing culture. CCS supplies frozen cells either in vials or ready-to-use in assay plates. Uniform batches of cells can be produced that are available in time to furnish a complete screening campaign.

Within a few years CCS has advanced to become a major outsourcing partner for cell-based drug screening and supports companies all over Europe and the U.S. with cell culture services and cell-based products. All services are provided by a team of scientists and technicians with many years of experience in the fields of molecular biology, cell biology and assay development. The CCS quality management system is certified according to the ISO 9001:2000 standard.

Further information: www.cellcultureservice.com

PORTRAIT CAN

Contract research and development services

The Hamburg-based Center for Applied Nanotechnology (CAN) GmbH is a public-private partnership which offers contract research and development services in the area of nanotechnology for companies and research institutions and participates in national and international research programs

Hamburg > CAN focuses on chemical nanotechnology and nanoanalytics, especially in the areas of consumables, cosmetics and health care. Besides state-of-the-art characterization of nanostructured matter, main areas of expertise are the production of a variety of nanoparticu-

late materials, composites and high-performance polymers, the encapsulation of active ingredients, and the development of nanoparticle-based biomedical systems.

In close cooperation with outstanding research groups from academia, mainly from the University

of Hamburg and the University Medical Center Hamburg-Eppendorf (UKE), CAN is able to handle and execute industrial and third-party financed R&D projects in a professional manner. One example from the nanobiomedicine area is the development of various standardized in vitro toxicity assays for nanoparticles. A key feature in this project is the systematic variation of nanoparticle size, shape and surface properties and the corresponding influence on the interactions with human tissues. CAN has therefore built up test facilities with a variety of cell lines from skin, the respiratory system and intestines. This research area includes the generation of a database, which along with the synthetic expertise, will lead to a straightforward development of innovative nanoparticle-based biological markers for molecular imaging.

Further information: www.can-hamburg.de

PORTRAIT Scope International Life Sciences Hamburg

Customer focus and flexibility in contract research

Scope International Life Sciences provides a full range of phase I contract research services. With increasing competition due to globalization, Scope's continuous success is based on delivering customized services, high flexibility and readiness to invest

Hamburg > In the field of generic and innovative galenic business, Scope concentrates on transdermal systems and narcotics. Another focus lies on first-in-man studies which are characterized by intensive safety precautions. A 24-bed intensive care ward, specially equipped to carry out first-in-man trials, guarantees the safety of the volunteers at all times. The adjoining two wards with 36 and 20 beds are specialized for clinical pharmacological types of study or trials that require long-term confinement of volunteers. Besides the clinical conduct, Scope of-

fers its clients the bioanalysis of the pharmacological samples gathered in the study. The in-house state-of-the-art laboratory is GLP-certified and uses LC-MS/MS and HPLC techniques. At present, 70 validated methods are available and annually around ten new methods are being developed.

By continuously investing in equipment, Scope is able to keep pace with the dynamic market. The recently acquired LC-MS/MS with integrated solid phase extraction is only one example. According to the investment plan,

telemetry devices and a validated temperature control system will be implemented by the start of the fourth quarter of 2007. A further key to the company's success is its central location in the metropolis of Hamburg. It ensures excellent volunteer recruitment conditions as well as an outstanding life science infrastructure, which provides many networking opportunities to regionally located physicians and companies from the biotech and pharmaceutical industries.

Further information: www.scope-hamburg.com

Photo: Della Trumpetter



Claus Hemker, Board Member, and Martin Barkworth, Head of the Bioanalytical Department, in front of the latest investment: an LC-MS/MS with integrated solid phase extraction

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STORY eBiochip Systems

On-site bioanalysis with electrical biochips

eBiochip Systems GmbH develops, produces and sells analytical systems for the identification and quantification of nucleic acids, proteins and other biologically important targets. The company was established in 2000 as a spin-off from Fraunhofer Institute for Silicon Technology (ISIT), and obtained exclusive licenses for a complete family of »electrical biochip« patents

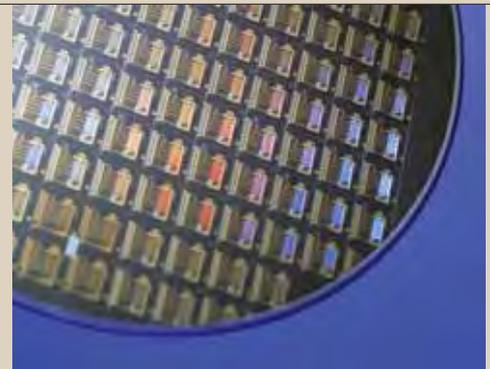
Itzehoe > The core technology of eBiochip Systems is the electrical microarray biochip. This technology, which combines silicon technology, microsystems techniques and established methods of biotechnology, enable the production of miniaturized, automated and portable devices.

The biochips are produced by Fraunhofer ISIT in an industrial semiconductor production facility. eBiochip Systems modifies the chips with biointerfaces, capable of simultaneously detecting up to 12 different targets depending on the customer's needs. The biochips are housed in user-friendly cartridges called »ChipSticks« for use in a simple »plug and play« manner. eBiochip Systems' analytical systems consist of special electronics for high-sensitive signal read-out of biochips in combination with microflu-

idic controls for the delivery of assay reagents. The systems come complete with software for configuration and measurement as well as data evaluation and presentation.

Currently three different types of analytical systems are available: eMicroLISA, ePaTOX, and MicroArray Trainer. eMicroLISA is dedicated to medical applications and research and development, whereas ePaTOX specializes in the detection of toxins and pathogens, especially in biodefense applications. The Microarray Trainer is an educational system with accompanying courses for the training of students and biotechnology technicians.

eBiochip Systems offers analysis systems for numerous applications, complete with measurement software, ChipSticks, and all necessary



Wafer on which electrical biochips are produced

reagents. These applications include, for example, the on-site detection of dangerous biowarfare pathogens that cause plague, smallpox, anthrax, tularemia and Q-fever, as well as the detection of the biotoxins botox A, B, E, staphylococcus enterotoxin B, and ricin. Other point-of-care applications developed with cooperation partners are the diagnosis of various methicillin-resistant staphylococcus types and the rapid identification of nine different types of influenza viruses, including the bird flu strain H5N1. Yet another class of applications is the quantification of human antibodies in blood to evaluate vaccine titers. Several other key applications in clinical diagnostics, such as the detection of cancer and cardiac markers, are in progress. Indeed, the great flexibility inherent in the detection platform allows the rapid adaptation of the analysis systems to customer needs for applications in medicine, microbiology, environmental and food analysis.

Further information: www.ebiochip.com



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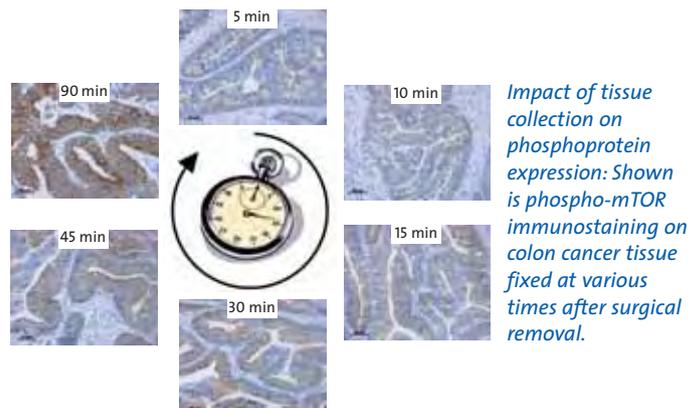
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Impact of tissue collection on phosphoprotein expression: Shown is phospho-mTOR immunostaining on colon cancer tissue fixed at various times after surgical removal.

PRODUCT FLASH Möller-Wedel

Optical systems for the future

In the course of Möller-Wedel's eventful history, the company has brought products of worldwide reputation to the market, such as high-precision measuring and testing instruments with extremely high light transmission, as well as a range of medical-optical products, especially for ophthalmology and microsurgery

Hamburg > Today, Möller-Wedel's most important products – operating microscopes for extremely difficult procedures on the central nervous system as well as on eyes and ears – are real high-tech systems with computer control, software, and a network. For all practical purposes, operating microscopes are connected to video recording and sometimes to digital image communication systems (DICOM). One of Möller-Wedel's latest products is the Microscope Imaging and Operation System MÖLLER MIOS. Its prime functions are DVD recording of operation scenes, capturing and recording of snapshots together with proper identification of patients and hospital data. MÖLLER MIOS is connected to the floor stand and provides recording for up to 50 hours.

The newest product of Möller-Wedel is MÖLLER MICC, a Microscope Information

Control Center, especially designed for microsurgery. It consists of a touch screen panel near the oculars of the operating microscope and is connected to a panel PC mounted on the floor stand. The image can either be shown in a preview mode simultaneously with the push-buttons or in a full picture mode. With the drape stretched over the monitor, the buttons can be operated without violating sterility.

Through a LAN connection you may open any IP address to view the settings of other equipment in the operating room and gain access to the brain atlas in the Internet, preoperative data in your private homepage, image and VoIP connection to consultants, or connection to other operating microscopes or operating rooms for telemedicine or teleconsulting anywhere in the world.

Information: www.moeller-wedel-optical.com



Photo: Möller-Wedel

MÖLLER 3-700 operating system with MÖLLER MIOS observation screen for the MÖLLER MICC system

PRODUCT FLASH steco-system-technik

imPort® – the axial access infusion port

The steco infusion port system imPort® is a lying port designed to administer highly toxic drugs e.g. in chemotherapy

Hamburg > The housing consists of titanium with lateral brackets for fixation. The diaphragm sits securely in the port housing by means of axial and radial grouting. It is designed to ensure that no technical dead space arises. The special catheter is secured by a collet. The imPort® system is certified for long-term implantation, and is supplied together with the suitable catheter and introduction equipment. Commercial standard straight Huber needles are used to puncture the silicone diaphragm. These are usually more

favorable than bent needles. During drug administration, the infusion cannulas often remain in the port system for several hours. If straight Huber needles are used, it is easier to fix the needles on the body than in the case of curved needles.

In the case of standing port systems the area of skin available for puncturing of the port is usually taut. If the drug is injected into the imPort®, the perforation is carried out in an area of the skin that is not taut. In addition, the germ barrier of the skin is stronger in the case of the

imPort® lying arrangement than in a standing arrangement. Unlike in the usual systems, the injection is carried out in an axis with the catheter. In this way, the needle cannot hit the bottom of the port chamber, becoming blunt and bent. Thanks to the special arrangement of catheter and membrane, it is also possible to lead a wire through a cannula and, in the case of suspected port infection, to take smears from the interior of the catheter.

Further information: www.steco.de



Photo: steco-system-technik

The imPort® made of titanium with catheter protective sleeve

Who was it?

Our competition in this issue is about the founder of a medical engineering company from North Germany. Find out who he is and send us the correct answer. This time, we will draw two times two admission tickets for the Hagenbeck Tropical Aquarium from all the correct answers.

During World War II, the person we are looking for developed aviation navigation methods near Lübeck. In 1945 he decided to apply radar technology to medical diagnostics. Together with a physicist, the high-frequency technician rented two work barracks on a hospital site and established a working group there. The foundation for the Electromedical Workshops had been laid.

What is the name of this person?

- A) Dr. Hans Hinz
- B) Dr. Heinrich Dräger
- B) Dr. Heinrich Netheler



If you know the right answer, you can, with a little luck, win two times two tickets for the Hagenbeck Tropical Aquarium. With one accompanying person, the winners will visit Hamburg's new attraction. The Tropical Aquarium houses 13,000 animals from 290 species: sharks and moray eels, poisonous and constrictor snakes, free-flying birds and flying foxes, Nile crocodiles, lemurs, spiders and many more besides. For more information, visit www.hagenbeck.de. Please send your answer with full address details to: raetsel@life-science-nord.de. Re: LSN puzzle

All employees of the institutions of the LSN editorial board and their families are excluded from participation. The winners will be drawn and their names published in the next issue. The jurisdiction of the courts is excluded.

Deadline: **December 31, 2007**

The winner of the competition in the last issue is: Dr. Hans Eggers, Bonn.

IMPORTANT EVENTS UP TO JANUARY 2008

NOVEMBER

November 7, 6 p.m.

Internationalization

BAY TO BIO Annual Conference

Venue: Schloss Reinbek ⁽¹⁾

November 8–9, 9 a.m.–5 p.m.

Patents and Rules on Intellectual Property

The seminar will consider the following questions: What is an invention? How can it be valued? What criteria should be applied? What points have to be borne in mind in patenting an invention? And lots more besides.

Venue: TuTech Innovation GmbH, Hamburg ⁽²⁾

November 9, all day

Hanseatic India Colloquium: Pharmaceutical, Biotechnology and Healthcare

The second Hanseatic India Colloquium plans to showcase the progress that India has made in the field of life sciences and to provide a platform for an effective networking between India and German/European companies with a focus on cooperation in the field of pharmaceuticals, biotechnology and healthcare. Further information: www.elgabiotech.com

Venue: University Guest House, Rothenbaumchausee, Hamburg

November 12–14, all day

BIO-Europe 2007

BIO-Europe brings together international decisionmakers from the biotechnology, pharmaceutical and financial sectors, offering networking opportunities, workshop participation, and private, pre-scheduled one-to-one meetings. Investment and collaboration opportunities developed in prior BIO-Europe conferences have produced many highly successful business partnerships. Further information: www.ebdgroup.com/bioeurope

Venue: CCH-Congress Center, Hamburg ⁽³⁾

November 14–17, all day

MEDICA 2007

This year, MEDICA 2007 is again presenting a wide range of new developments in medicine and healthcare.

The joint North German stand is in Hall 16.

Further information: www.medica.de

Venue: Messe, Düsseldorf

November 14, 5 p.m.

MEDICA 2007 – Reception at the joint North German stand

Presentation by Prof. Dr. Hans Bruch, University Clinic of Schleswig-Holstein.

Venue: Joint North German stand, Hall 16, Medica, Messe Düsseldorf ⁽³⁾

November 20, 9 a.m.–5 p.m.

Funding Workshop

Strategies on regional, national, European and other funding sources especially for small and mid-sized enterprises (SMEs) will be presented with an overview of funding from Hamburg, Lower Saxony, Schleswig-Holstein and the Federal Government (e.g. Federal Ministry of Education and Research), the EU (7th Framework Program) and foundations.

Venue: TuTech Innovation GmbH, Hamburg ⁽²⁾

November 30, 2 p.m.

ScanBalt seminar: Biosystems in the Baltic Sea Region

Bringing together life science and microsystems technology.

The aim of an EU-cofinanced project is to step up the integration of research and business in biosystems technology in the Baltic Sea region. Further information: www.scanbalt.org/biosystems

Venue: Multifunktionscenter Lübeck

November 30–December 1, all day

Technology Management

Seminar on Innovation Process Planning.

Venue: TuTech Innovation GmbH, Hamburg ⁽²⁾

DECEMBER

December 3, 4–6 p.m.

Dental Innovations in Hamburg and Schleswig-Holstein

Inaugural event in cooperation with steco-system-technik GmbH & Co. KG, the Hamburg Chamber of Commerce and Norgenta GmbH. The focus will be on questions relating to the industry's degree of innovation with particular regard to the situation in North Germany; the degree of networking; the needs of individual players and potential improvements of individual aspects such as promoting cooperation with cluster players outside the dental sector.

Venue: Hamburg Chamber of Commerce

JANUARY

January 28–31, all day

Arab Health 2008

The Arab Health exhibition and congress is the region's premier event for the Middle East, bringing healthcare manufacturers, wholesalers, dealers and distributors together with some of the most important and influential decision makers in the Arab world.

Visit North Germany in Zabeel Hall.

Venue: Dubai International Convention and Exhibition Centre

January 30, 6 p.m.

Financing

Conference of BAY TO BIO.

Venue: not yet known ⁽¹⁾

Further information and all updates on dates and contacts can be found online:

(1) BAY TO BIO e.V. www.baytobio.de

(2) TuTech Innovation GmbH www.tutech.de

(3) Norgenta GmbH www.life-science-nord.net

Business Development and Technology Transfer Corporation of Schleswig-Holstein www.wtsh.de

Arbeitsgemeinschaft Medizintechnik in Schleswig-Holstein e.V. www.agmt.de

White biotechnology in the north is riding high



Photo: TuTech-Innovation

White biotechnology is well established on a high level in North Germany – and not just since BIODKATALYSE2021 won the »BioIndustrie 2021« competition initiated by the Federal Ministry of Education and Research (BMBF). Innovative companies and excellent academic research form a good breeding ground

> **Biotechnology is considered** the key technology of the future given its huge problem-solving potential in all areas of life. In this regard, white or industrial biotechnology assumes an important role. It uses the enormous potential of enzymes and microorganisms to create sustainable methods to produce chemicals, food and feed additives, pharma intermediates, technical enzymes and biofuels. Bio-based technologies such as biorefining will further step up the pace of development in white biotechnology.

As an interdisciplinary, cross-sectional technology, white biotechnology profits considerably from experts from a wide range of specialisms working closely together in networked structures. In recent years, such networks have been successfully initiated in North Germany. In November 2005, Schleswig-Holstein, Hamburg, Mecklenburg-West Pomerania, Bremen and Lower Saxony launched their Initiative Industrial Biotechnology North (IBN) to network their scientific and economic activities in white biotechnology and to raise their profiles politically and vis-à-vis development agencies. The aim is to initiate new cooperation projects between the scientific and business communities and thereby to increase economic strength and create new jobs.

The first big success came when »BIODKATALYSE2021 – new approaches to sustainable biocatalysis« won »BioIndustrie 2021«, the cluster competition organized by the Federal Ministry of Education and Research. The cluster, which is coordinated by TuTech Innovation GmbH, has set itself the goal of establishing an interdisciplinary network to develop innovative processes and products such as chemicals, aromas and cosmetic active substances using biocatalysts. 15 large companies with global operations are taking part together with 19 SMEs and 22 academic research groups. The latter are mainly from the five North German federal states. Over the next five years, the BMBF will provide 20 million euros in funding. Industry and the states will offer a further 30 million euros.

I am pleased that this cluster was able to beat off strong competition and that the north has now become a »lighthouse« for white biotechnology. I am sure that this is only the start of further dynamic developments in this area within our region. The new challenges lie in using renewable raw materials to produce fuels and platform chemicals. The north will make use of its opportunities in this area, too.

Prof. Dr. Dr. h.c. Garabed Antranikian is Director of the Institute of Technical Microbiology at the Hamburg University of Technology (TUHH) and scientific coordinator of the »BIODKATALYSE2021« cluster. For more information, visit: www.technical-microbiology.de, www.ibnorth.de, www.biokatalyse2021.de

WHAT'S NEW? WE WANT YOUR INPUT!

The team at Life Science Nord wants to do more than just report on the many diverse business successes and promising research approaches from the North German life sciences sector. We also want to provide constructive ideas and stimulate fruitful debate. Together, we want to create a platform for news and information, for know-how and contacts, from which all those involved can profit.

To do so, we need you!

Tell us about your current work. Report on your business success and scientific knowledge. Tap into the industry's know-how and build valuable contacts.

Play an active role yourselves. Together, we can achieve more.

Your input > Please send information and views to: input@life-science-nord.de

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PUBLISHER

norgenta:

Norgenta North German Life Science Agency GmbH
Managing Director: Dr. Kathrin Adlkofer
Falkenried 88, 20251 Hamburg
Tel.: +49.40.471 96 400, Fax: +49.40.471 96 444
info@norgenta.de, www.norgenta.de

EDITORIAL BOARD

Ina Akkerman (responsible under press law),
Norgenta North German Life Science Agency GmbH
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PRODUCTION

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PROJECT MANAGEMENT: Nicole Suchier
EDITOR: Birte Zess, Dr. Jörn Radtke, Brigitte Stahl-Busse
GUEST AUTHORS: Prof. Dr. Dr. h.c. Garabed Antranikian
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