

# OSLO BIO UPDATE

A newsletter from Oslo Teknopol covering activities in the life science cluster in the Oslo region

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## OSLO AND TOULOUSE

### CANCER CLUSTERS JOIN FORCES

In November Oslo Cancer Cluster signed a groundbreaking strategic agreement with the Toulouse Cancéropôle and Cancer-Bio-Santé Cluster, which will lead to an integrated effort to become the leading cancer centres in Europe for developing new cancer therapies. The signatories were Philippe Douste-Blazy, President of Cancéropôle Toulouse Association, former mayor of Toulouse and former French foreign minister, Jean-Pierre Saintouil, CEO of Toulouse Cancer-Bio-Santé Cluster and Bjarte Reve, CEO of Oslo Cancer Cluster NCE. It also contained a preliminary series of key initiatives to be implemented over the next two years, including a joint response to the next Cancer Calls of the EU Innovative Medicines Initiative.

According to Bjarte Reve, the agreement stems from growing recognition that combined research and industry-based clusters focusing on a particular therapeutic area are the way forward: "Oslo and Toulouse are pioneers in this area". Through partnership between the life sciences industry, research institutions, university hospitals, government and the Norwegian Cancer Society, we have been able to rapidly develop the Oslo Cancer Cluster.

More at page 3.



Photo: Rojan Ezzei

## AGEING BRAIN PROVIDES IMPULSE FOR NEW NEUROSCIENCE NETWORK

Following the success of the Oslo Cancer Cluster, Norwegian neuroscientists are to launch a new network to accelerate research and interaction within industry. With already strong links with the UK, the network will explore collaboration possibilities under the theme "The Ageing Brain" in a special pre-Genesis seminar in London in December. According to Ole Jørgen Marvik from Innovation Norway's life sciences initiative this is just the first step, "We have first class academic resources here in Norway along with some unique assets such as biobanks and are confident we can stimulate the formation of a cluster that will push neuroscience forward."

REPORTING ON A

# HEALTHCARE INNOVATION HUB

Michael Reiter, European Hospital Post

Photo: Hospital Post EMEA



Michael Reiter, Editor-in-chief,  
Hospital Post EMEA

**To a journalist from central Europe, Trondheim and Oslo create somewhat of a challenge when visited in November: snow at the airport, the sun setting early in the afternoon - but great nature, impressive architecture - just look at Oslo's new "timber-and-ice" Opera - and exquisite food will compensate for these seasonal issues. I'm sure I'll find Norway an even more enjoyable place in a hot and bright summer!**

Why would a healthcare journalist happily appreciate the opportunity to come to Norway? Before I make my explanation in detail, I'll give you a profile of who we are and what we do. GIT Verlag is part of the Wiley Blackwell publishing group, we are located in Darmstadt/Germany. Healthcare is one out of five market segments we cater for, with publications which address, in particular, decision makers in hospitals - CEOs, leading physicians, as well as IT, lab, pharmacy managers and heads of further departments. This is the group of people who are, generally, involved in deciding on strategic, larger-scale investments - medical technology, IT, lab equipment and so on. We publish magazines and newspapers in German and, for a European audience, in English.

## LIGHTHOUSE APPLICATION ENVIRONMENTS

The first stop on my visit was Trondheim, where I saw what is a prime example of so-called offensive restructuring: with more than 80 per cent of the existing hospital demolished and 210,000 square meters to be created over a period of ten years, Trondheim's St Olavs Hospital complex is a colossal project.

Photo: Bjørn Dufseth, Nye Åhus



Great attention is paid to architecture as a key to therapeutic success in Norwegian hospitals such as the new A-Hus in Oslo.

The greatest challenge is most probably to keep the campus in full operation while this process continues. While the approach of installing complete units dedicated to respective medical disciplines and types of diseases may spark debate, the creation of single rooms - economizing on space for consulting and guest rooms - sharing costly-to-implement bathrooms hints to a fusion of hospital management savvy and architectural expertise. The integration of nature, light, and art to foster therapeutic success is another key element in this architecture. Building aspects left aside, this hospital excels with minimally invasive approaches in its "Future" or "Experimental OR". The N.O.T.E.S. concept makes use of the body's orifices to minimize patient suffering and cost in interventions - aiming at a reduction of ICU time, and of risks to patients. High-definition is another method under investigation in Trondheim; applied to imaging, it enables physicians to see, e.g., even small nerves and avoid suboptimal cuts.



Photo: HP Health Center of Excellence

Close collaboration between academic, hospital and industry actors is another key factor for success in R&D activities in Norway. HP has opened a new Health Centre of Excellence (HCoE) in Oslo.

*"We are moving away, in healthcare, from a handicraft approach to an industrialized approach which includes internationalization, centralization and specialization",* explained the Head of Rikshospitalet's Interventional Centre, another lighthouse institution in Norway. Competition nowadays, according to the manager's experience, comes from major hospitals in Stockholm and Copenhagen. For an increasingly demanding clientele, top-level hospitals need to stand out - which drives research in medicine and technology. Image-guided treatment, telemedicine, miniaturization, biomolecular science, and cell engineering are among the top areas at this institution in Oslo.

## A CORNUCOPIA OF BUSINESS MODELS

The multitude of emerging and established companies active not only in the mid-Norway and Oslo regions bears testimony to these technology trends. Medical imaging including intra-operative guidance, healthcare IT - such as real-time location service, workflow optimization, patient triage and logistics and bioinformatics - as well as non-invasive pain measurement and molecular diagnostics supporting the detection of breast cancer and Alzheimer's are select examples for valid concepts. One key factor for the success of research and development



Norwegian hospitals are used as testbeds for the latest imaging systems by industry.

activities in Norway is certainly the closeness and collaboration of the academic, hospital, and industry actors in the communities of this sparsely populated country. I've seen outstanding achievements which should help health systems, in Europe and elsewhere, cope with the consequences of demographic change. Aging, multi-morbid populations with emancipated patients

and a huge cost burden need smart minds driving innovations - like they do in Norway!

Michael Reiter,  
editor of Hospital Post EMEA

### Continued from page 1

Having developed links with like-minded centres in the US, such as MD Anderson, Toulouse stood out as a potential partner when we turned to Europe. We are therefore delighted to have signed this agreement and to share our vision of ensuring that patients have access to the latest cancer diagnostics and therapeutics as quickly and cost-effectively as possible."

Philippe Douste-Blazy, initiator of the Toulouse project, congratulated the creators of this collaboration and stressed the similarities between Oslo and Toulouse:

*"This is especially evident in their ethical approach, which cannot be categorized as a purely economic approach but instead places the patient at the heart of the concept."*

Jean-Pierre Saintouil, also welcomed the agreement, *"Our experience in Toulouse has paralleled that of Oslo. Cancéropôle and the Cancer-Bio-Santé Cluster have drawn strength by bringing together a hospital, universities, research institutes and companies and integrating the academic fields and technologies necessary to fight cancer such as biology, chemistry, nanotechnologies, information technologies and mathematics etc. Like Oslo, the primary objective is to improve prevention, treatment and diagnostics and thereby the lives of cancer patients."*

### A POWERFUL COMBINED APPROACH TO IMI

Under the terms of the agreement, Oslo Cancer Cluster NCE with Cancer-Bio-Santé Cluster and Toulouse Cancéropôle have agreed to cooperate in the fight against cancer, to create new business and industries and to stimulate exchanges and investments through good practice and effective joint research activities. This will be achieved with the cooperation of industry, academia, training, finance and venture capital firms and government in the respective regions. Both parties are also committed to financing physical resources on the ground - Oslo recently announced a EUR 150 million investment in a Cancer Innovation Park to be completed by August 2012, while Toulouse is building the Cancéropôle and numerous other dedicated facilities at a cost of EUR 1 billion. Another tangible result of the agreement will be a joint response to the next Call for Proposals from the EU's Innovative Medicines Initiative.

### OSLO, TOULOUSE, HEIDELBERG, LONDON....

At the Genesis Conference in London in December, Oslo and Toulouse will host a special BioCafe together with Heidelberg and London to showcase the real potential for accelerating the translational cancer research that exists in Europe to pharmaceutical companies and other stakeholders.

## AMGEN JOINS OSLO CANCER CLUSTER

Amgen, Sanofi, Aventis, Dako and BMI are the latest companies to join the Oslo Cancer Cluster along with the University of Oslo. A delighted CEO Bjarte Reve also revealed that the cluster would have its first non-Oslo member in 2009 when Stavanger University Hospital comes on board.

## PIPELINE STRONG

A recent survey by the Norwegian Bioindustry Association shows that the country's biopharmaceutical pipeline continues to grow and mature. Although the report only contains information about projects in late pre-clinical and clinical phases that have originated in Norway, it lists 20 projects in late pre-clinical trials (15 in 2007) and at least 35 projects in clinical trials (31 in 2007). Cancer is the dominant area. Interestingly 90% of the projects in clinical trials are based on chemically synthesized molecules, whilst the international trend seems to be towards projects based on biological materials. Companies with late stage products include Algeta, Clavis, Biotec Pharmacon and Photocure. Among those entering or close to the clinical phase are PCI Biotech, Lytix and Epitarget.

[www.biotekforum.no](http://www.biotekforum.no)

## DIAGENIC LAUNCHES BCTECT IN INDIA

In early November, DiaGenic launched its BCtect™ blood based test for early diagnosis of breast cancer at a special event in New Delhi. Speaking at the event, DiaGenic CEO Erik Christensen, M.D. Ph.D., revealed that the company decided to launch the test in India because of the interest generated by its large clinical study across the country, which confirmed the test's gene

signature is unaffected by ethnic variation.

*"We hope that by introducing a test that uses peripheral blood rather than tissue from the actual breast, more women will be encouraged to come forward for testing,"* said Dr. Christensen. *"In addition, we see BCtect™ filling a gap where mammography is not readily available."*

The DiaGenic BCtect™ breast cancer test will be marketed in India through SRL Ranbaxy, the largest laboratory chain in South East Asia.

In preparation for the upcoming European launch, DiaGenic ASA has also signed a service provider agreement with DNavision, a leading pan-European provider of gene expression-based diagnostic testing and services.

Read more at [www.diagentic.com](http://www.diagentic.com)

## CEVIRA SHINES FOR PHOTOCURE

Photocure recently presented positive interim data at the six-month follow up stage of its phase I/II clinical feasibility study with Cevira at the EUROGIN 2008 international conference. Cevira is Photocure's photodynamic therapy (PDT) in development as a new treatment for precancerous lesions of the cervix (CIN) induced by persistent human papilloma virus (HPV) infection. The six-month clinical data from 35 patients in Norway showed that 73 % of patients with moderate grade lesions (CIN2) were treated successfully as determined by the complete regression of lesions confirmed through a normal biopsy (histology) and cell sampling (cytology). 38 % of patients with more severe (CIN3) lesions also responded positively to Cevira treatment. More at [www.photocure.com](http://www.photocure.com)

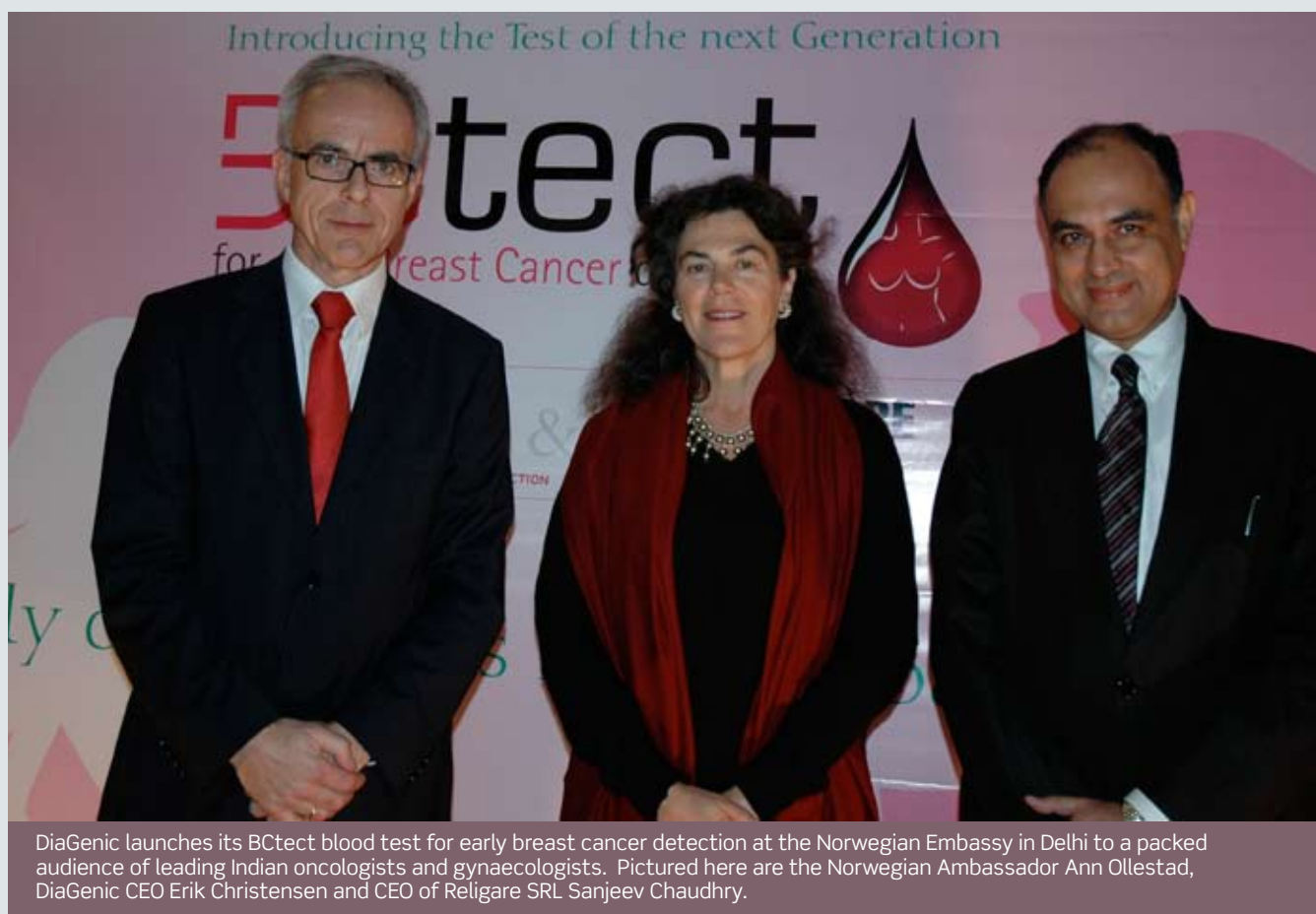


Photo: DiaGenic

DiaGenic launches its BCtect blood test for early breast cancer detection at the Norwegian Embassy in Delhi to a packed audience of leading Indian oncologists and gynaecologists. Pictured here are the Norwegian Ambassador Ann Ollestad, DiaGenic CEO Erik Christensen and CEO of Religare SRL Sanjeev Chaudhry.

## BIOTEC PHARMACON OFFERS DIABETIC ULCER HOPE

The first 3 patients have been enrolled in the second of Biotec Pharmacon's two phase III-studies with SBG for the treatment of diabetic ulcers. An estimated 3.5 million diabetes patients in the OECD-area develop foot and leg ulcers each year, for which there are no well-established treatments available. These ulcers often develop into a chronic condition with a high risk of infections, which in many cases may end with amputation. Results from Biotec Pharmacon's first phase III-study are expected during 2009, and the company's objective is to file for marketing authorization for SGB in patients with this indication in mid-2010. More at [www.biotec.no](http://www.biotec.no)

## ALGETA ON TRACK

Highlights of Algeta's recent third quarter results included the enrolment of patients for the pivotal phase III ALSYMPCA (ALpharadin in SYMptomatic Prostate CANcer) study. This is now ongoing in several countries in Europe, with an increasing recruitment rate as more clinical centres are open for the study. In addition, the first US clinical trial of Alpharadin was started at the Memorial Sloan-Kettering Cancer Center in New York.

Read more at [www.algeta.com](http://www.algeta.com)

## AFFITECH ACQUIRES PHARMEXA'S DIABODY TECHNOLOGY

Affitech AS has acquired the full rights to the innovative diabody technology originally owned by Pharmexa A/S, a leading Danish immunotherapeutic and vaccine company. Also known as bi-specific single chain antibodies, diabodies are recombinant antibody-like proteins whose unique attributes make them attractive candidates for a variety of therapeutic applications. Affitech CEO Martin Welschof commented, "This is a key strategic move for Affitech AS, since this diabody technology complements our existing antibody discovery platform perfectly. We are delighted to have this technology under our total ownership, which will benefit both our proprietary programs and our collaborations with pharmaceutical and biotech companies." Read more at [www.affitech.com](http://www.affitech.com)

## POLYPURE SECURES MAJOR PEG SUPPLY CONTRACT WITH BD

PEG specialist Polypure today announced that it has signed a five-year contract to supply BD Biosciences with specialist PEGs for its existing and in-development diagnostic ranges. BD is the latest major medical technology company to start using Polypure's monodisperse products, which offer significant performance and cost advantages over polydisperse PEG derivatives.

Marybeth Sharkey of BD Biosciences commented that Polypure PEGs met the exacting design specifications and quality demands set by their R&D division. "Since working with Polypure, we have noted a marked quality improvement and consistency due to the quality of Polypure's PEG compounds."

More information at [www.polypure.no](http://www.polypure.no)

## LYTIX DELIVERS KILLER BLOWS

Lytix's LTX-109 lead compound was a major hit at the recent ICAAC conference in Washington. The latest trials show that the novel lytic peptidomimetic has an ultra-rapid bactericidal effect, and is significantly better at killing *Staphylococcus aureus* and *Streptococcus pyogenes* than marketed gold standard drugs. In addition to this, Lytix reported it has proven effective against a wide range of 110 European *Pseudomonas aeruginosa* clinical isolates, a problematic Gram (-) bacterium. According to Lytix Biopharma spokesperson Anders Fugelli, these are important studies, "The fact that LTX-109 is effective against a broad range of pathogens highlights its potential utility as a truly novel broad spectrum antimicrobial drug. Indeed it is so effective, that although the initial formulation is for the treatment of skin infections, we could now consider it for other indications such as skin and nail fungal infections, acne and oropharyngeal candidiasis. We are now in the final stages of pre-clinical development and look forward to taking LTX-109 into the clinic in the second half of 2009."

For more information visit [www.lytixbiopharma.com](http://www.lytixbiopharma.com)

Photo: Image Photo AS



Nordiag's Bullet system for high throughput fully automated DNA sample prep system able to handle urine, swab, faeces, sputum and blood samples.

## NORDIAG'S BULLET CONTINUES TO HIT THE TARGET

Having recently completed a similar trial with Roche, NorDiag has also now fully automated the process from the primary urine tubes to the set up of the BD (Becton Dickinson) ProbeTec ET System. NorDiag's "Bullet" instrument has the capacity to process up to 100,000 isolations per year.

"This is an important milestone for us since this is the backbone of IVD/CE marking and successful commercialization of our automated sample preparation systems," says Mårten Wigstøl, CEO in NorDiag. This implies substantial revenue potential for our company from an established customer base".

More at [www.nordiag.com](http://www.nordiag.com)

# MOLE GENETICS

**If you are a research scientist, it's been hard to miss Mole Genetics this year. With their bright quirky ads and coffee bar-themed stands at exhibitions, they have made a major impact in a short time. Their desktop GeneMole instrument enables researchers to automatically extract precious DNA from samples in a few minutes instead of the hours it normally takes using manual kits. What's more, they have managed to make GeneMole affordable for even the smallest labs. Here managing director Frank Larsen, reveals the secrets of their success.**

## When was Mole Genetics founded and by who?

Mole was founded in June, 2005. The founders are in the company management; myself, Tone Yrvum the Director Sales and Marketing and Arne Deggerdal the Research Director.

## What was the business idea?

The business idea is to make an automated solution for sample preparation available to all research labs. Mole will focus on DNA and RNA extraction for the first products. The solution should aim for an instrument with software and reagents that is intuitive to use, a range of applications, high quality DNA/RNA and affordable price. Mole itself is a biotech company that focuses on customer applications and links product development closely with the customers. We have more than 50 years accumulated experience working with magnetic beads in companies such as Dynal, GenoVision and Qiagen. We combine this experience with expertise in chemistry, molecular biology, software and instrumentation. It is very rare for a small company to be able to cover all these disciplines.



*GeneMole has revolutionised the DNA extraction market by making automated sample processing affordable for even the smallest labs.*

## What has been the progress so far?

After three years we have an instrument on the market and have achieved sales in 8 European countries. We have genomic DNA applications documented for more than 60 different sample types and are ready to launch a similar range of applications for RNA in Q1 2009.

## What is so special about GeneMole?

GeneMole is the first fully automated solution for DNA/RNA extraction on the market with a price as low as EUR 10,000. The GeneMole comes with integrated PC, pre-programmed applications and pre-filled reagents strips. It lives up to the slogan "Three Clicks Away from Pure DNA". Together with our customers we also develop an extensive documentation package - The Mole Cook Book - showing them how to isolate DNA and RNA from their particular special sample type.



*Launched in Europe this year, GeneMole has been on show at key exhibitions such as the ESHG in Barcelona.*

Photo: Richard Hayhurst

## You launched in Europe early this year - how has the market received the instrument?

To our satisfaction, we have been proved right that there is market for our product and furthermore that the market is growing fast. Until around 2000, DNA and RNA purification was performed manually using centrifugation and either chemical extraction or spin column purification. Our former company GenoVision started the process of bringing automation to small and medium size labs by using magnetic bead based extraction. Mole is taking this a step further with a solution better suited for research labs. The customers like the easy-to-use GeneMole instruments, the small size of the instruments and the fact that it is a multi-user solution. The DNA applications are giving equivalent results to manual results. However many labs also do RNA work using manual extraction kits and we have to develop an application for this to meet their needs.

## What have been the main applications?

DNA isolation from blood samples has been the main application so far, but Mole is covering a wide variety of sample types that people work with - from human samples to cyanobacteria in water and difficult samples such as buccal swabs and saliva. Fortunately, Mole's kits and protocols have been able to handle this variety of samples very well.



Marketing Direct and co-founder Tone Yrvum is delighted by the impact GeneMole has had: "We knew the market was looking for an affordable solution, but even we have been surprised by the initial reception. Our aim now is to increase the number of applications and focus on providing excellent customer service."

#### **Are you still on track to launch in the US next year?**

Mole will launch the GeneMole in US in 2009 as planned. It is important to have a product with a wide range of applications before we introduce the products in the US, but we will be in position in 2009. A lot of research labs that are interested in our products have actually contacted us already, so this looks promising.

#### **The market is very competitive, how does a smallish company like Mole compete?**

In the growing market for DNA/RNA extraction, where the lab instrumentation is just starting to get accepted, we see some competition. But if we look at companies selling fully automated solutions that are easy to use, we have a limited amount of competition. Mole is facing a couple of big companies in the market, but we see that we are able to compete. However, a small company needs to be offensive in the way it positions itself in the market. Mole is a specialist company giving customers excellent service and a wide range of pre-made solutions. This is very attractive to research labs, where the trend is to favour small companies with competent people they can communicate with. This is clearly different to larger companies that have sales people with a large product portfolio and that sell out of catalogues.

#### **Are there more products in the pipeline?**

Mole's business model is to bring new models and dedicated instruments and solutions to the market. However in 2009 GeneMole will fully focus on the existing instrument and broadening the application range from basic research applications to clinical applications. New product development will be based on feedback from customers.

For more information [www.molegenetics.com](http://www.molegenetics.com)

# MARELIFE CASTS ITS NET WIDER

**MareLife claims to be the first innovation cluster to gather together all three biomarine sectors - the so-called “three waves” - Fisheries, Aquaculture and Marine bioprospecting and ingredients. The five working groups Aquaculture, Fisheries, Marine ingredients, Commercialization and Reputation are now involved in several R&D projects and national processes addressing the major challenges and opportunities.**

**More background information at [www.marelife.no](http://www.marelife.no)**

## Molecular medicine to hook up with biomarine sector

Over the last year, the MareLife network backed by Oslo Teknopol has been advocating closer collaboration between Norwegian marine bioprospecting and drug discovery groups. According to MareLife coordinator Øystein Lie, this would help create a more complete and robust nationwide marine drug discovery infrastructure with enhanced commercial appeal.

Now Professor Kjetil Taskén at the Biotechnology Centre, University of Oslo has responded by proposing a project entitled “ChemBioNet Norway”, which would enable the sector to hook up with his FUGE-funded Chemical Biology Platform. The emphasis is on providing chemical biology and high throughput screening resources via several “marine gateways”, e.g. searching for targets for natural compounds derived from marine bioprospecting activities as well as downstream deriving of hits and their possible conversion from natural to synthetic compounds.

## Atlantic mackerel next to be SNPed

Applying life sciences to ensuring fish stock sustainability is a key objective of the MareLife network. Now a new project has been initiated to look at stock structures of the vital Atlantic mackerel species. For the first time it utilizes state of the art genetic tools; e.g. genetic markers such as microsatellites and



Photo: Håkon Sparre

The Chemical Biology Platform which provides access to mainstream research technologies and resources for both public and private research groups is to extend from the human to the marine life sciences sector in Norway

SNPs, population biology and statistics together with adequate sampling procedures backed by fisheries and maritime competence and experience. Project partners include the Norwegian School of Veterinary Medicine, Oslo, (Prof Frode Lingaas chair of pilot project), Institute of Marine Research, Bergen, NIFES Bergen and fisheries operator Libas AS, the lead partner and the commercial party both being MareLife members. The project is supported by the Research Council of Norway.

### Algae potential to be investigated

Algae is gaining increased interest in sustainable bio production. First, because of highly diverse application potentials, e.g.: fertilizer, feeds and feed ingredients, food and food ingredients, medicine, waste and water treatment and energy. Secondly, and not least, because of their parallel ability to produce vital products and capture CO<sub>2</sub>.

Norway has a strong tradition in algae research and MareLife members are preparing for an explorative project to address commercial scale production in listed fields of algae applications.

### 1st International MareLife Innovation Workshop

MareLife's international workshop at North Atlantic Seafood Forum 2009 aims to provide a unique forum to discuss biomarine innovation. According to Øystein Lie, "We firmly believe that there is still a vast untapped opportunity in marine life but an international cross-sector approach is needed to realize this potential."

For more information: [www.nor-seafood.com](http://www.nor-seafood.com)



Photo: NASF

Seafood is a major industry where Norway is leading the way in applying life science know-how in for example the fields of vaccines, DNA traceability and breeding genetics



## EVENT CALENDAR

Meet representatives from the Oslo life science sector at the following events:

### DECEMBER 2008

9 – 10 Oslo Cancer Cluster at Genesis Bio Conference, London, UK.

[www.genesisconference.com](http://www.genesisconference.com)

### FEBRUARY 2009

24 – 25 Bioprospect 2009, Tromsø, Norway.

[www.bioprospect.no](http://www.bioprospect.no)

### MARCH 2009

2 – 6 Oslo Bio delegation in Malaysia and Singapore

[www.innovasjon Norge.no/malaysia](http://www.innovasjon Norge.no/malaysia)

[www.innovationnorway.sg](http://www.innovationnorway.sg)

4 – 5 MareLife at North Atlantic Seafood Forum 2009, Oslo, Norway

[www.nor-seafood.com](http://www.nor-seafood.com)

### APRIL 2009

18 – 21 Scandinavia Pavilion at Bio International Convention 2009, Atlanta, USA

[www.bio2009.org](http://www.bio2009.org)

### JUNE 2009

24 – 26 pHealth 2009 in Oslo, Norway

[www.phealth2009.com](http://www.phealth2009.com)



Photo: Kelly Scientific

Increasing numbers of life scientists are joining Norwegian companies as they expand and internationalise. The quality of life, attractive employment conditions and ability to work in English are key factors.

## NEW TALENT ALWAYS WELCOME

Over the last ten years, Kelly Scientific have recruited a lot of qualified candidates in different areas to the Norwegian biotech industry. Local manager Rudi Holt finds it a continuing but rewarding challenge:

*“Norwegian biotech companies depend on investors and they need to be able to convince them they can hire experienced staff to manage their business from “Molecule to Market”. However in a small industry working in new areas there is, of course, a lack of people with experience of regulatory affairs, managing trials in different phases and international business development. Therefore we have always been open to recruiting from abroad – and not just from our Scandinavian neighbours. Some of the positions are on a consultative basis or on fixed term contracts but there are also increasing incidences of candidates settling permanently and even moving between Norwegian companies. We find that once people acclimatize they love the standard of living and oft-mentioned quality of life. As we come to the end of 2008, there are close to 40 ongoing projects in clinical trials (Phase I-II-III-IV) and 20 in late pre-clinical trials. It seems as if the investors are optimistic and will continue to fund these trials, which means that Kelly Scientific, in spite of the credit crunch, remain optimistic concerning scientific recruitment.”*



Photo: Kelly Scientific

### OSLO REGION TOPS EUROPE IN KNOWLEDGE-BASED WORKERS

Norway's capital was the clear winner in a new survey of knowledge-based economies in Europe performed by Eurostat, the EU statistics agency. The survey measures the percentage of human resources in science and technology (HRST) amongst the total workforce, and is seen as an indicator of the development of the knowledge-based economy in the EU. According to Eurostat, “the core group of this population — known as HRSTC — can be considered as active stakeholders in the development of knowledge and technological innovation.” By definition, HRSTC are persons who have successfully completed tertiary education



Jethro Holter, R&D Director of Mole Genetics, is just one of the young life science professionals who has chosen to develop his career in Norway for both professional and quality of life reasons.

and work in an S&T occupation as professionals or technicians. The Oslo region led the survey by nearly 5 % over the number two, Stockholm.

### BIOTECH BUILDS ON REGIONAL STRENGTH

Among key investments set to secure Oslo's position as a knowledge hub in Europe is the new Oslo Cancer Cluster Innovation Park, referred to by Biotech Sweden as Europe's largest investment in cancer research. Further strengthening the region's knowledge base will be a key task for the new centre, according to CEO Bjarte Reve, *"By integrating education into the science park we hope to enhance recruitment of well-trained talent, and thereby secure the long-term quality of research conducted here."* Reve concludes. For more information: [www.kellyscientific.no](http://www.kellyscientific.no)  
[www.oslocancercluster.no](http://www.oslocancercluster.no)

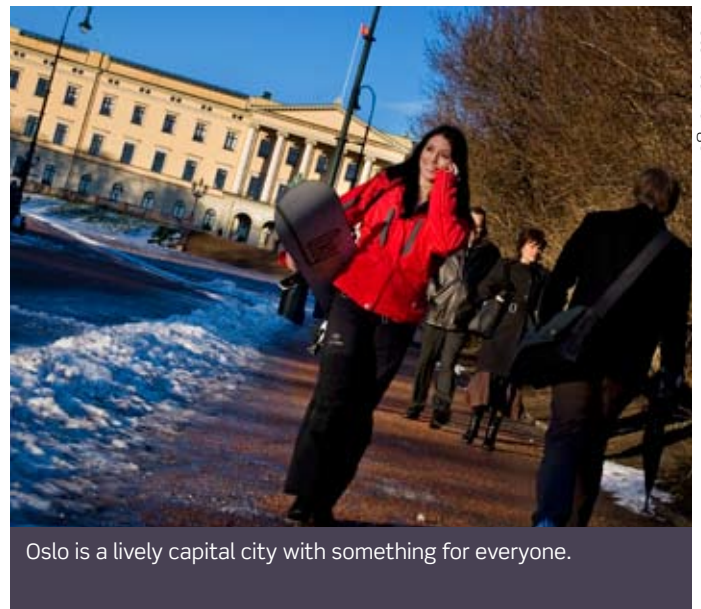
### FROM MY EXPERIENCE...

***What is it like to live and work in the life sciences in Norway? Here Jethro Holter, R&D Director of Mole Genetics gives his personal thoughts.***

For me Norway is the perfect location to combine a career with an adventurous lifestyle. I originally relocated to Norway to be together with my Norwegian partner, but shortly after arriving I discovered it hosts a first class research community supported through generous government funding and high tech industrial enterprises. The Norwegian science and technology sector is constantly seeking to expand its expertise with talented individuals with international experience and diverse backgrounds. Personally I took advantage of the opportunities available to advance my scientific career and now I am enjoying success leading an R&D department in a Norwegian owned biotech company.

As Norway boasts some of the most fantastic nature in the world, it really appeals to my adventurous side. I enjoy the winter months skiing, snowboarding, snowkiting, cross country skiing in the mountains and relish the summer for kitesurfing in the fjords or mountain biking and hiking along woodland trails. Of course, Norway is known as one of the world's most expensive countries to live in but this is only relative since the salaries are generally high. From my experience, I have never had such a high standard of living and found no problems in becoming accustomed to Norwegian culture. I am content with my life here and intend to remain in Norway for the foreseeable future.

For more information about living and working in Oslo:  
[www.oslo.teknopol.no](http://www.oslo.teknopol.no)



Oslo is a lively capital city with something for everyone.

## MED-STORM INNOVATION

**Med-Storm is developing a bedside monitor for patient pain measurement during anaesthesia, intensive care and preterm infants for which there is perhaps surprisingly no current alternative available.**

### COMPANY FOCUS

Med-Storm was formed in 1998 based on research into measuring changes in skin conductance at the Institute of Physics at the University of Oslo. At the Department for Pediatric Research, University of Oslo, Dr. Storm had been using skin conductance and other physiological tests to study premature infants during the various procedures they are exposed to. She has also investigated patients during and after operations and patients on artificial ventilation. This led to the formation of Med-Storm and the development of the Med-Storm Pain Monitor. This will enable hospitals to measure pain and awakening in real-time during anaesthesia. Managing this so-called "5th Patient Vital Sign," is a major problem. For example it has been mandatory for over 5,500 US hospitals since 2002, but they have lacked appropriate means to do so. The Pain Monitor has already gained rapid acceptance amongst opinion leaders in Europe with over 100 units ordered. The company has just been awarded an EU Eurostar grant to develop a special intensive care version in collaboration with the Karolinska Institute and the engineering firm Hotswap AB in Stockholm. A 510K application has also been made to the FDA.

Read more at [www.med-storm.com](http://www.med-storm.com)

### MANAGEMENT

Hanne Storm, Associate Professor, MD, PhD, Medical Director  
Jens O. Gran, Project Manager  
Trond Klevjer, Customer Support  
Per-Ola Forsgren PhD, Advisor Technical development

### COLLABORATIONS

In addition to the University of Oslo, Med-Storm has collaborated extensively with SINTEF, GE Healthcare, Siemens Draeger, Aspect Medical Systems, the Karolinska Institute, the US Neonatal Pain Control Group and the European Society for Anaesthesiology. Orbit One AB is the manufacturing partner.

### PATENTS

The company has 12 patent applications and 4 granted patents around the field of skin conductance measurement.

### KEY RECENT PUBLICATIONS

Storm H. Changes in Skin Conductance as a tool to monitor nociceptive stimulation and pain. Current Opinion in Anaesthesiology 2008, 21:796-804

Ann Christin Gjerstad, Kari Wagner, Thore Henrichsen and Hanne Storm Skin Conductance Versus the Modified COMFORT Sedation Score as a Measure of Discomfort in Artificially Ventilated Children Paediatrics 2008;122:e848-e853

### INVESTORS

The company is privately owned by the founders, a US investor and a Norwegian VC seed fund.

## Oslo Teknopol

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Oslo Teknopol aims to stimulate innovation and attract foreign investments and talent to Norway's capital region. We offer free assistance and information about business conditions and opportunities within life sciences and other key knowledge-based clusters in the Oslo region:

- Maritime
- Energy and environmental technology
- Information and communication technology
- Life science
- Culture

Oslo Teknopol is a non-profit regional development agency, established by the City of Oslo and Akershus County Council.



Oslo Bio is a collaborative network of stakeholders from the life science cluster. Oslo Bio aims to strengthen the cluster and contribute to long term growth through marketing, initiating and facilitating development projects, and international collaboration. Oslo Teknopol act as the secretariat for Oslo Bio.

**For more information contact:**  
**Oslo Teknopol at [info@oslo.teknopol.no](mailto:info@oslo.teknopol.no)**

