

OSLO BIO UPDATE

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

CHINESE WINDOW SET TO OPEN ON EVE OF ECCP2010

Following the building of links in Europe and the Hamner Institute in the US, the focus this year for Oslo Cancer Cluster (OCC) has been China. CEO Bjarte Reve made several exploratory visits before OCC showcased itself and members during Oslo Week at the World Expo in Shanghai in May. Reve believes this will not only open up opportunities in China, but also help bring to fruition his vision of a Global Gateway for translational oncology.

“Oslo itself has been twinned with Shanghai for 9 years so we had some connections we could build upon,” says Reve. “The idea was to look into opportunities for drug development and commercialisation of research into diagnostics and treatments. Through one such connection, Professor Zhenhe Suo of Oslo University, we were able to arrange an official visit to Shanghai Institute of Materia Medica (SIMM). This world renowned institute



Photo: Susanne Werner

is investigating possible connections between traditional Chinese and western medicines for cancer. So successful was the visit that we are developing an Memorandum of Understanding for signing this month – although work on an exchange scheme has already started and the first researcher is arriving in the fall.

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THE FUTURE LOOKS BRIGHT...

Especially for brain imaging with the opening in September of a major new worldclass facility for in vivo brain imaging at the University of Oslo. The Letten Centre is located at Centre for Molecular Biology and Neuroscience (CMBN), Institute of Basic Medical Sciences, and provides facilities for multiphoton laser scanning microscopy. A delighted Professor Tone Tønjum, Director of CMBN commented: “The imaging facility has been established due to a generous donation from Professor Letten Saugstad, who herself has contributed greatly to our understanding of brain development and neuropsychiatric disease. The Letten Centre will

be one of the most advanced centres for bioimaging in Scandinavia and is associated with Centre for Molecular Medicine Norway, Nordic EMBL Partnership. We are at a truly exciting time in neuroscience research and we hope to continue to be in forefront of new discoveries by investing in facilities such as this for our excellent research groups.”



Photo Gunnar F. Lofthe, CMBN



Richard Gallagher, former editor of the Scientist and keynote speaker at ECCP2010.

WHY ECCP IS THE PLACE TO BE

By Richard Gallagher, Hopeful Monster Publishing

Later this month I am traveling to Oslo. It's a 20-hour, 10,000-kilometer slog from San Francisco (via Frankfurt), which will take me a week to recover from, but I am excited. Why? Well, the event that I'm attending – European Cancer Cluster Partnering Meeting – promises to be interesting and important. Each of the five words in the title lends something to my anticipation of it.

EUROPEAN

The life sciences enterprise is certainly a global one, but regional priorities, advantages and disadvantages mean that its character varies across the world. One distinctive European flavor is the nature of the healthcare systems which in terms of value for money and accessibility to the population are acknowledged to be superior to US systems. Add in greater integration of services and a drive towards the establishment of electronic healthcare records, and Europe looks like a good place to develop and implement the coming radical changes in healthcare practice.

CANCER

Cancer remains an enormous challenge to healthcare systems everywhere. In high-income countries, one in three of us will develop cancer – with one in five of us dying as a consequence – while in low-income countries, where over half of all cases occur, outcomes are far, far worse as resources simply are not available to deal with the burgeoning cancer problem.

Set against these savage statistics, there have been promising increases in 5-year survival rates in wealthy countries. These are due largely to early detection, the result of improved public and professional education. Truly effective control of cancer will only be achieved through research and development. Encouragingly, our scientific understanding of cancer is currently being transformed, and this knowledge is being translated into new tools to combat disease. Let me highlight some areas of progress.

We now have a good understanding of the genetic susceptibility to disease, and this is being parlayed into useful information for each of us, for example through personal genomics services, such as that offered by 23andMe (1).

The cancer genome project (2) is set to take genetics much farther by identifying mutations acquired during life that are critical for the development of cancers (as opposed to inherited variation that we already know about, which confer susceptibility).

Biomarkers for cancer are of enormous value too. These are easily measured and accurate biological indicators of a particular state of the body. They can provide real-time readouts of the status of a tumor and its response to therapy; permit early diagnosis and differential diagnosis, and be used to follow disease progression. Many new drugs are being co-developed with biomarkers—called companion diagnostics—that predict whether a particular drug will work in a patient.

This use of biomarkers to stratify patients into responder and nonresponder groups is a big step towards personalized medicine. It bridges the gap between the historic method of treating cancer, which was a one-size-fits-all approach in which patients were all given the same treatment, to a true personalized medicine approach to cancer treatment, where patient treatments are individualized.

Personalized medicine also requires a conveyor belt of potential new targets and new anticancer drugs. And we have these in abundance. For example, a Google news search on the day that I am writing this (1st September) reported two new targets for Ewing's sarcoma; a drug used to treat diabetics showing potential to prevent tobacco-induced lung cancer; and a new drug that may benefit 80% of patients with metastatic melanoma. In addition, the finding of adult mammary stem cells that might be used to regenerate breast tissue, with obvious implications for mastectomy patients, was reported. Not all of these leads will be realized, of course, but they illustrate the current sense of purpose and optimism in the cancer community. An even better illustration of this are the 27199 cancer trials listed on clinicaltrials.gov on 1st September.

CLUSTER

Just as nightclubs or fabric shops benefit from localizing to particular parts of the city, so enterprises such as biotechnology can gain greatly from aggregating in clusters. Biotech clusters tend to emerge where a strong science base coexists with funding availability and a supportive business environment. A cluster is much more than the sum of its parts: It offers a pool of potential new employees, a greater likelihood of attracting the attention of investors and partners, an increased profile at the national and international level, and mutual support – maybe even friendly rivalry. Clusters generate opportunities and engage the innovative researchers and business leaders that drive innovation.

The organizers of the ECCP meeting, the Oslo Cancer Cluster and the Cancer – Bio – Santé cluster of Toulouse, both have a strong focus on cancer. This is unusual—biotech clusters are typically broader in focus—but smart. It provides a true “nerve centre” in a critically important field, and it develops an existing strength of the region. For example, host, OCC, has close to 50 members, and is dedicated to developing local collaborations and international partnerships; increasing funding and accessible capital for members; establishing a clinical trials network; and championing an Innovation Park to bridge research, biopharma and education.

PARTNERING

New, small companies may be the preeminent source of innovative ideas, technologies and lead compounds in cancer, but they form but a small part of the complex ecosystem that brings new healthcare products and services to the market.

The ecosystem, namely “all the organisms living in a particular area, as well as all the nonliving, physical components of the environment”(3) is a good analogy since it speaks to interdependence of the participants as well as the prevailing environment. Players in the development of new medicines include academic institutes, venture capitalists, the pharmaceutical industry, regulatory agencies and healthcare service purchasers as well as biotechnology companies. There is an ongoing web of interactions among these groups, with partnering meetings being among the more numerous and popular. At these events, companies with novel products and services get to pitch to potential partners, often pharmaceutical companies in search of a competitive advantage. With pharma currently cash-rich and with a growing taste for what they call external innovation (as opposed to research done in-house: internal innovation) opportunities exist for both sides. It’s fair to say that the pharmaceutical industry is looking to fill more than half of its pipeline with externally-sourced leads.

In the case of ECCP, some 80 partnering opportunities have been listed on the website in advance of the event. This is a small, select group—the major meeting of the year, the BIO Convention, claims to have included 17,000 partnering meetings.

MEETING

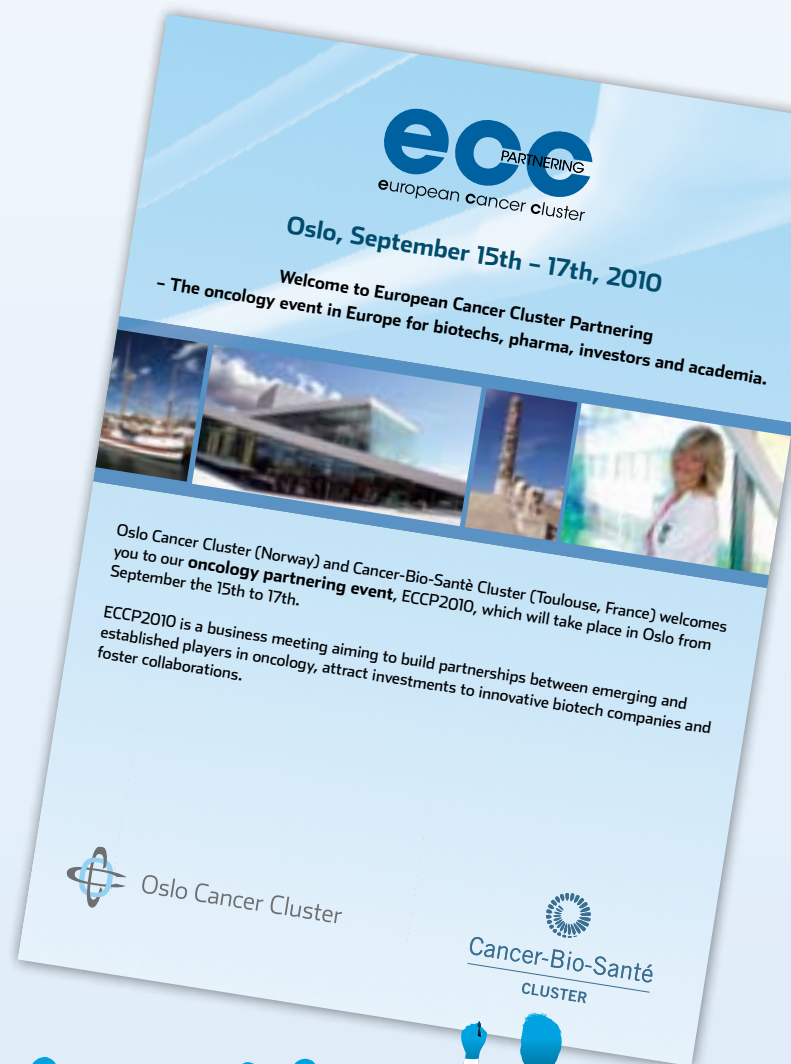
Email is indispensable, apps rock, video conferencing is a boon: how did we ever live (or at least work) without them? However, speaking as someone who works from a home office, there is no replacement for face-to-face interaction. Attending an event, watching and listening the speakers, socializing with

other delegates—that’s where real progress, and strengthening of the ecosystem, takes place. There is simply no substitute for the random surprise and enjoyment of being present in person.

Plus, there’s the location. Despite the expedition to get there, and the cost of a beer, Oslo is wonderful place to visit (4). I am looking forward to meeting old friends, and making new ones at ECCP. For me, it’s the place to be.

References

1. www.sanger.ac.uk/genetics/CGP
2. www.23andme.com
3. Biology Concepts & Connections Sixth Edition”, Campbell, Neil A. (2009)
4. Oslo Bio Update October 2008, Viewpoint



WHAT NEXT FOR OSLO CANCER CLUSTER?

A visit to new Oslo Cancer Cluster (OCC) headquarters a few weeks before ECCP2010 finds Chairman Jónas Einarsson a happy man. With good reason. His beloved Leeds United are coming to grips with life after promotion to the English championship, he has just organised a 30 – year anniversary celebration of what is reckoned to be Norway's best ever rock concert – the Sex Pistols – and he has had a preview of the official evaluation by Oxford Research of OCC's first three years.

“Without giving too much away it looks good and gives us confidence to put forward our ideas for another three years which the government will hopefully favour. The key thing to remember is that we set out to create a membership organisation and to provide them with the services they actually needed.

These have fallen into four categories. Firstly we wanted to initiate and foster collaboration between biotechs, pharma, researchers and other stakeholders. So we have set up physical meeting places – ranging from ECCP to our R&D meetings, which are held around 4 times a year. And of course our renowned summer party! We also take part in Oslo Innovation Week along with the Oslo Medtech and Nansen Neuroscience clusters. Outside Norway we have taken members to the Genesis and Anglo-Nordic Conferences in the UK and BIO in the US. We've also set up collaborations with the Hamner Institute in North Carolina are currently in negotiations with SIMM in China.

The second objective has been to increase the clinical trials resources available to biotechs and pharma in Norway and to this end we have actually funded a position at the Phase I/II Unit in Oslo University Hospital. We are now lobbying the government to further invest in this area.

Thirdly we have been trying to encourage investment. The success of Clavis and Algeta last year moving from Phase II to Phase III is a major boost. Already this year PCI has built on this. However seed capital has dried up – Sarsia's fund is fully allocated and we have to find an answer to this problem.

Last but not least we have created a physical location for encouraging collaboration in the Oslo Innovation Park. The final planning approvals are almost in place and we expect to complete on schedule in August 2013.

We have also succeed I believe in being seen as independent by the politicians and genuinely representing the consensus opinion of patients, industry and hospitals. They listen and indeed at a meeting I attended only a few days ago, the Department of Knowledge and Skills placed biotech development firmly on its strategic agenda.



Jónas Einarsson promises Oslo Cancer Cluster will continue to help drive translational oncology forward.

Photo: Linda Cartridge/Oslo Cancer Cluster

Nevertheless, we haven't finished anything - in reality we are only three years old and have not even reached infancy. Above all, we want to continue on our journey to becoming a truly worldclass organisation. To do this we accept we need not just more of the same, but some amazing new ideas.

Perhaps they will involve finding ways of identifying and facing the new challenges in not only cancer, but healthcare in general. We know we can treat cancer more successfully than even before, but what are the consequences of this? When, if ever, for example, are you cured? What kind of quality of life should we be aiming to provide survivors? Or new ways of funding. Or accelerating drug discovery. We don't know yet, but I am sure we will deliver when the time comes!”



Photo: Livestrong

LIVESTRONG PARTNERSHIP ON TRACK

Founded in 1997 by cancer survivor and champion cyclist Lance Armstrong, LIVESTRONG fights for the 28 million people around the world living with cancer today. Known for the iconic yellow wristband, LIVESTRONG connects individuals to the support they need, leverages funding and resources to spur innovation and engages communities and leaders to drive social change. Doug Ulman, President and CEO of LIVESTRONG, will be a keynote speaker at ECCP:

How did the link with Norway originate?

LIVESTRONG was first introduced to Bjarte Reve at a World Economic Forum conference in Cape Town last year. Bjarte is head of the Norwegian Cancer Cluster and an inspiring young leader. We invited him to the LIVESTRONG Global Cancer Summit in Dublin last August and he and Doug Ulman spoke specifically about young survivors with Sanjay Gupta for a series of interviews with CNN. We subsequently spoke about future work in Africa, due to their historic relationship in the region, and Bjarte invited Ulman to come to Oslo. We felt it was a very good fit because of their youthful approach to problem solving and regional approach to improved access to care, globally.

What is the Foundation's message to industry, investors and researchers - ie the audience at ECCP?

Our message is two-fold:

- Support collaboration and partnerships at all levels, because if we work together, we can avoid competition and duplication of efforts.
- Increase support and resources for programs and research.

Increased investment is crucial, especially now that non-communicable diseases are getting attention from the global health community (e.g. the upcoming United Nations 2011 Non-communicable Disease Summit). Recent studies show the economic cost of cancer is rapidly increasing, meaning the private sector has a stake in this fight as well. A great deal of opportunity exists for the cancer community to make progress through public-private partnerships, which have already proven to be successful in many ways.

www.livestrong.org

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When the MOU is signed I believe we will have opened a window of opportunity for Norwegian biotech companies to gain access to Chinese drug development and clinical trial resources from one of the foremost institutes in Asia. To give some example of the scale of operations, each year over 200 PhDs graduate from SIMM. This is also the next step in our plans to create a Global Gateway for translational oncology. If we think about drug development in 10 years time I envision a situation whereby a molecule discovered in Norway could be worked on continuously in the US and then China following the time zones. There is no escaping the fact that biotech is global and development and trials need to be done on a worldwide basis. Through these latest moves, we are trying to create the framework for this to happen in oncology."



Photo: Susanne Werner

Oslo's Vice Mayor for Finance meeting the CEO of SIMM.



Photo: Susanne Werner

Shanghai Institute of Materia Medica (SIMM) is one of China's leading research institutes.

CLAVIS OPTIMISTIC ABOUT WHOLE SECTOR

One of the strongest supporters of OCC and ECCP is Clavis Pharma which, along with Algeta, is also one of the real stars of Norwegian biopharma. On the eve of the conference, CEO Olav Hellebø gives his thoughts on the current biotech investment scene.

“The biotech investment environment has improved dramatically over the last eighteen months with companies in both Europe and the US able to raise equity finance. IPOs still remain difficult but a small number of companies have managed to float as investors’ appetite for risk has improved and VC’s have accepted lower IPO valuations. Pharma companies continuing M&A activities as a way of supplementing their portfolios, such as Shire’s offer to acquire Movetis, is another factor keeping interest in the sector. Looking ahead I believe there is a good appetite from Norwegian investors for biotech opportunities given the returns that they have been made in the last year while international investors remain willing to support biotech companies selectively based on the attractiveness of their equity story.”

FRENCH ENTENTE BECOMES EVER MORE CORDIALE!

Oslo and Toulouse seem made for each other - the Oslo Cancer Cluster/Cancer-Bio-Santé collaboration goes from strength to strength according to CEO Jean-Pierre Saintouil.

What has happened with Cancer-Bio-Santé over the last year since ECCP in Toulouse?

Since the ECCP 2009, Cancer-Bio-Santé (CBS) and Oslo Cancer Cluster (OCC) have contributed to the constitution of two European consortia for answering the IMI 2009 Cancer call.

The consortium, led by the Cancer Center Institut Claudius Regaud of Toulouse, who answered to the IMI Imaging Biomarkers work package involved different European partners: Institut Gustave Roussy, Institute of Cancer Research, Royal Hospital Marsden, Istituto Europeo di Oncologia, Oslo University Hospital, Centro Nacional de Investigaciones Oncológicas, IXICO and Cyclopharma.

How has the cooperation with OCC progressed?

The OCC and CBS collaboration is already very efficient and productive. Since the signature of our agreement in November 2008, the two clusters have been able to contribute to gather two IMI consortia and have created the B2B European Cancer Cluster Partnering which has been a real success already for its first edition with the participation of 22 countries. These two achievements represent a significant outcome in only few months of collaboration.

SANOFI SUPPORTS ECCP

With its origins in Toulouse, Sanofi has been a natural partner for ECCP. Delighted with the success of last year’s event, Lars Gunder Gundersen, BUD CNS/Oncology in Norway commented: “Oncology continues to be an area with large unmet medical needs, and thus for Sanofi-Aventis it represents an important therapeutic area to focus on.

We believe that collaboration with scientific and academic institutions as well as with Industry (Biotechs / Pharmas) is critical to more efficiently bring new major medical advances to the best benefit of the patients. Therefore we support ECCP, one of the cornerstones in the international cooperation in the important field of oncology.”



Photo: Cancer-Bio-Santé

J P Saintouil, CEO of Cancer-Bio-Santé addressing last year’s ECCP in Toulouse.

What are you expecting/looking forward to at this year’s ECCP in Oslo?

The aim for this second ECCP edition in Oslo is to consolidate and increase the success of this new meeting, which should become an international reference B2B meeting in the field of Cancer.

Your aims for next year?

Our aim is to develop new common and successful initiatives with OCC and may be consolidate our respective other current collaborations with other cancer clusters, such as Beijing and Maryland for CBS, in order to create an international Cancer Cluster network.



Hans Ivar Robinson sees major opportunities for Norwegian life sciences.

FRESH FACE ON THE INVESTMENT SCENE

Birk Venture is a welcome addition to the Oslo and Norwegian life science investment scene and already have backed Algeta, PCI Biotech and newcomers Nordic Nanovector profiled in the Inven2 article. On the eve of ECCP we catch up with founder and principal Hans Ivar Robinson.

What led you to set up Birk?

Well after studying in Bergen, I have had an interesting and exciting career in international pharma for Astra Zeneca and Pfizer before returning to Norway to work for Pronova before and after their IPO. This gave me a taste for the biotech world, as well as an understanding of how big pharma viewed it and the investment opportunities on offer - and so, 7-8 months ago, I decided to set up Birk Venture. I have to say that initially my co-investor Per-Oluf Olsen and I thought we would be looking across Scandinavia, but already we have been pleasantly surprised by the number of opportunities in Norway alone.

What are Birk Venture's priorities?

We have an initial Nok50 million, which we aim to invest exclusively in biopharma and medtech. We are looking at young companies in the early development phase, but also companies that need funding to commercialise products and service. We see this as the major challenge here - to provide the finance, competence and skills needed. This could to a larger extent be from outside as Algeta and Clavis have recently shown.

How do you see the future for Norwegian life sciences?

Overall very good. The government seems to be quite keen on the sector and there is funding to help in the early phases. The focus should however also be on support and funding of commercial development. Organisations such as OCC are doing a great job. Of course there are some hurdles to overcome but in general the outlook is not too bad. We do need to focus on what we do best, for example oncology and marine bioprospecting - Norway can't be world leaders in everything!

www.birkventure.com



Photo: Scampix/Fredrik Solberg

PCI Biotech is one of the exciting new breed of Norwegian life science companies Birk Venture has invested in.



Production of Alpharadin underway for use in Algeta's clinical trials.

CLAVIS PHARMA

During the past few months, Clavis Pharma has continued to make significant progress. In June, the Company hosted a Capital Markets Day in Oslo, where members of the press, analysts and investors listened to presentations from the Company, its partner Clovis Pharma, and a clinical oncologist. A similar event was held in London.

In June, Clavis Pharma made an important appointment when Athos Gianella-Borradori MD, an experienced onco-hematologist and drug developer was recruited as its new Chief Medical Officer. The Board was also strengthened with the appointments of Anders Wiklund and Annette Clancy.

In August, Clavis recruited its first patient into its pivotal Phase III study of elacytarabine in patients with late-stage acute myeloid leukaemia. The primary objective of the study is to compare overall survival between elacytarabine and the investigator's normal choice of treatment in patients with late-stage AML. The trial will recruit up to 350 patients at 65 sites in the USA and Europe. Patient recruitment is due to complete at the end of 2011 and the results are expected in mid-2012.

Also in August, Clavis Pharma's partner Clovis Pharma recruited the first two patients for its Phase II clinical study comparing CP-4126 with gemcitabine for the treatment pancreatic cancer. The study will measure overall survival in prospectively-defined hENT1-low patients as the primary endpoint. The trial is expected to enrol 250 patients, across 80 centers around the world. Recruitment of this Phase II study is expected to complete in 2011 with results reported in mid-2012.

www.clavispharma.com

ALGETA STARTS PHASE I/IIA TRIAL OF ALPHARADIN IN COMBINATION WITH DOCETAXEL CHEMOTHERAPY

Algeta announced in July that it has treated the first patient in a phase I/IIA trial of Alpharadin in combination with docetaxel. The trial aims to recruit up to 60 men with bone metastases resulting from castration-resistant (hormone refractory) prostate cancer (CRPC). This new combination study therefore will determine if the use of Alpharadin can be safely combined with docetaxel in patients who have bone metastases and can tolerate chemotherapy.

www.algeta.com

LYTIX BEGINS SKIN INFECTION TRIAL

Lytix Biopharma AS has received approval in Hungary to commence a Phase IIa clinical trial with Lytixar™ (LTX-109) for treatment of skin infections caused by Gram positive bacteria. Lytix sees a major opportunity in this market since resistance to existing topical drugs is increasing.

www.lytixbiopharma.com

PHOTOCURE ESTABLISHES US SUBSIDIARY TO BUILD SPECIALITY DERMATOLOGY BUSINESS

Photocure has announced the establishment of a US subsidiary, Photocure Inc, and the appointment of Terry Conrad as President to build its specialty dermatology business in the US. The company is developing Allumera™, a novel PDT-based solution for improving the appearance of skin. Currently undergoing a pilot consumer trial in the US, Allumera is scheduled for launch in 2011. www.photocure.no

BIOTEC PHARMACON RECEIVES US PATENT FOR SBG ANTIBODY ADJUVANT.

Biotec Pharmacon has announced that one of the company's patent applications referring to a combination therapy for cancer treatment has been granted in USA. The patent is a composition patent protecting combinations of Biotec Pharmacon's proprietary compound soluble yeast beta-glucan (SBG) as an adjuvant together with monoclonal antibodies for treatment of cancer. www.biotec.no

PCI -BIOTECH NEARS END OF PHASE I HEAD AND NECK CANCER TRIAL

PCI Biotech's already widely reported Phase 1 trial of an Amphinex/Bleomycin light mediated therapy for head and neck cancers continues to show impressive results and is due for completion by the end of the year. The company now aims to initiate a series of trials into other indications. However, an initial study into bladder cancer is being re-evaluated.

www.pci-biotech.com

AFFITECH MOVES FORWARD AFTER RUSSIAN FINANCE INJECTION

As part of Affitech's recent partnership with NTS Plus, the Company has commenced preclinical development of two novel proprietary drug candidates AT001/r84 – a highly selective human antibody to VEGF with a high market potential, and AT008 – a human antibody antagonist of CCR4. Both products are being developed as new potential therapeutics for cancer and initial clinical trials will be conducted in Russia.

www.affitech.com

BIONOR IMMUNO'S THERAPEUTIC HIV VACCINE CREATES STIR AT AIDS

Bionor Immuno AS presented stunning results from a recently conducted re-vaccination study of 26 Vacc-4x primary responders at the recent AIDS conference in Vienna. 22 of the 26 continued to show a strong immunological response 7 years on from first vaccinations.

"Given this new data, and because Vacc-4x is comprised of 4 modified peptides that target conserved domains of the HIV p24 protein, we are especially optimistic about our ability to control HIV," said Birger Sørensen, CEO, Bionor Immuno. "Stimulating an immune response seven years after injection is, in itself, unprecedented in HIV. But we know we have more work to do."

www.bionorimmuno.no

EPITARGET RAISES NOK2.5 MILLION FOR ULTRASOUND MEDIATED THERAPY

In June, Epitarget AS completed a private placement of 2,500,000 shares amongst existing shareholders at a subscription price of NOK 1 per share. The company also recently announced two new board members – Dr Henrik Lund, Global Vice President MC Clinical Development, AstraZeneca R&D and

Dr Praveen Sharma, Director of Technology and co-founder of DiaGenic ASA, a molecular diagnostics company based in Oslo. www.epitarget.com

SERODUS ENTERS HYPERTENSION ARENA

Serodus has acquired the rights to Zealand Pharma's ORL-1 agonist ZP120. Serodus intends to develop the compound for the treatment of patients with isolated systolic hypertension. ZP120 has previously been studied in patients with chronic and acute heart failure. www.serodus.com

NEXTERA LICENCES TWO NEW DRUG DISCOVERY TECHNOLOGIES

The young drug development company Nextera AS has expanded its technology platform through licensing of two technologies from Birkeland Innovasjon AS. "These technologies give us an expanded basis for drug discovery. "DeltaPhage" is tailored for highly efficient pIX-based phage display, whereas the MHC class II related technology opens for entirely new opportunities in the discovery of HLA/MHC II and CD4+ T-cell related drug candidates for e.g. rheumatoid arthritis and cancer. We are building a patent portfolio that will be an excellent basis for highly efficient discovery of novel biological drugs", says CEO Ole Henrik Brekke. www.nextera.com





Photo: Øyvind Heia

The BMI team is led by experienced life science entrepreneur Ingrid Alfheim.

BMI STRENGTHENS COLLABORATIVE LINK WITH SWEDISH COUNTERPARTS

Bio-Medisinsk Innovasjon AS (BMI) has announced a series of new collaborations intended to strengthen its company portfolio. Both build on a tradition of collaboration with centres on the west coast of Sweden. The first is with Sahlgrenska Science Park (SSP) in Gothenburg to advance their efforts in the commercialization of biomedical research.

Moving down the coast and the second agreement is with Lund University Bioscience AB (LU Bio, www.lubio.se), also to develop bioscience inventions. BMI and LU Bio are both early stage investors active within the field of biomedicine. As both financial resources and pharmaceutical development experience are decisive, a closer collaboration will greatly increase the chances of success for both organizations and their portfolio companies.

"We will meet on a regular basis with the aim of making syndicate investments, but also to learn from the other's experience", says Ingrid Alfheim, the CEO of BMI. "We have excellent people in both organizations with different fields of competence and knowledge, all needed for successful commercialization of biomedical projects. The combination of skills in both teams will act in a synergistic manner".

"In Sweden we have a history of pharmaceutical industry, and consequently industrial experience available for startup companies. We find great science in both countries, and we believe that the opportunity for international success will increase by picking the winners and jointly support them", says Thomas Anderson, CEO of LU Bio.

At the moment BMI is actively involved in the management of 6 companies, 3 of which (Vaccibody, Nextera and siRNAsense) are devoted to development of effective cancer therapies. Currently managing 5 companies, LU Bio is also involved in cancer therapy as lead investor in Cantargia AB which is developing an effective therapy targeting leukemic stem cells.

Finally, BMI has also signed an agreement with the people behind Burrill Nordic, full details of which will be revealed in our next issue.

www.bmioslo.no



MIE2011 TO BE HELD IN OSLO

MIE2011, the 23rd International Conference of the European Federation for Medical Informatics is coming to Oslo, and will take place from 28th -31st of August 2011. The last time the conference visited Norway was in 1988.

The idea behind MIE2011 is to provide a forum for the European health informatics research and development community to learn about ongoing work and achievements in research, development and implementation of health technology.

The conference will open with workshops at Akershus University Hospital, recognized as one of the technologically most advanced health facilities in Europe if not the world.

This will be followed by presentations of research and innovation in health records, standards, social software, as well as strategies for user involvement, benefits for patient care, development for sustainable use. New challenges when health professionals collaborate in (virtual) teams with colleagues and patients will also be discussed.

In addition to International and European achievements, MIE2011 will offer special tracks on Telemedicine and eHealth, Scandinavian Health Informatics achievements, and National research projects and developments. For more information, please visit: www.mie2011.org or [email info@mie2011.org](mailto:info@mie2011.org)

INVEN2 A NEW KEY PLAYER IN THE OSLO TECH TRANSFER AND COMMERCIALIZATION MARKET

ECCP also sees the debut of Inven2 - the new technology transfer and commercialization company formed from the merger of Birkeland Innovation and Medinnova. The new company's mission is to commercialize innovations from University of Oslo, Oslo University Hospital and the southern health region of Norway, which includes the internationally renowned Ulleval, A-Hus and Radium Hospitals. Oslo Bio Update caught up with two key members of the now 28-strong team, CEO Jostein Dalland and Vice-President of Technology Jonny Østensen to get their thoughts on the opportunities this major development brings and hear about 3 of the "stars" in their cancer portfolio - Nordic Nanovector, Odin Therapeutics and Telomerase!

What was the motivation for the merger?

Dalland: "The time was right to develop the next generation technology transfer company. Our owners (University of Oslo, Oslo University Hospital, and Helse Sør-Øst) saw the strategic opportunity to strengthen innovation capacity and establish one strong regional and also national player. National since more than 70% of medical life science research is conducted in the region.

Østensen: "Our owners have given us the rights to all inventions and scientific results with a commercial potential. Over the last few years both Birkeland and Medinnova have doubled the number of innovation projects, and we believe that by combining forces one plus one will equal three!"

What opportunities do you see?

Dalland: "There is a lot of discussion in Norway about what happens after the oil and improving the value chain of commercialization of sophisticated research is one of the keys to creating a sustainable knowledge based economy. We believe in particularly that the life sciences sector represents a significant potential for value creation, and that the merger gives us an unique opportunity to build on."

Østensen: "We definitely have the potential here in Norway. Not only is the science world-class, but also researchers are increasingly switched on to the idea of translational medicine. We are also starting to create some serial entrepreneurs such as Roy Larsen, the founder of Algeta."

And challenges?

Dalland: "Always, but nothing we cannot handle. We have a strong team with commercial experience as well as fundamental understanding of the specific challenges related to bringing inventions from academic to industry application. In addition, we have significantly strengthened our IPR and legal competence, thus building a strong platform for utilizing IPR as a commercial tool. A fundamental challenge is the "Valley of Death" meaning the gap from publicly financed research to



Photo: Inven2

Jostein Dalland and Jonny Østensen aim to make Inven2 a major force in Scandinavian life sciences.

getting access to private risk capital. We need a solid Norwegian model to bridge this gap, and unfortunately too little work has been done to address this so far. However, the main development is a good one - we have significantly increased the number of commercializations and the number of innovation opportunities/projects being offered to us is also increasing!

Østensen: "Yes are very happy to receive an increasing number of quality projects, however we have been turning down around 6 out of 10 ideas at the initial stage and then of course some even fail at the final hurdle such is the nature of life sciences. We are fair but firm, and regarding the patenting issue we use our own in-house attorney and legal team to early assess the possibility. We want to focus on the real opportunities, and are willing to prioritize accordingly"

What does the portfolio look like today?

Dalland: "For ECCP we have chosen to showcase the three projects below which highlight particular opportunities in oncology. However, this is by no means the whole portfolio, we also have a range of exciting projects in antibacterials, cardiovascular drugs as well as cleantech and ICT."

Østensen: "The plan is to present these companies to interested collaborators and investors over the course of 2010-11, but we welcome direct enquiries via Jostein, myself or any other member of the team."

inven2
OSLO CLINICAL TRIALS

HEMATOLOGIC CANCER – ANTIBODY BASED NANOVECTOR

Nordic Nanovector was established in 2009. The company develops novel anticancer therapeutics based on Oslo University Hospital (Norwegian Radium Hospital) and Nordic Nanovector's own innovative research on tumor targeted antibody based nanovector.

By applying a beta-particle emitting radionuclide conjugated to a tumor seeking carrier, malignant metastasized tumors can be irradiated with minimal damage to nearby healthy normal tissue. This technology aims to prolong survival and improve the quality of life of people who suffer from hematologic cancer in particular non-Hodgkin Lymphoma (NHL).

Compared with current antibody based therapies on non-Hodgkin Lymphoma which uses the antigen CD20 as the target,

Nordic Nanovector's lead compound Betalutin targets the CD37 antigen. CD 37 is present on a large majority of NHL tumors. Thus, the large number of patients who eventually fail CD20 directed therapies could benefit from CD37 directed therapies.

The founder of Nordic Nanovector, Roy Larsen, is also founder of Algeta which is one of the great success companies in breakthrough cancer therapies. Nordic Nanovector has developed an extensive collaboration with Oslo University Hospital (Norwegian Radium Hospital) as well as other significant research institutes.

The company has recently raised NOK 13 mill in a share issue. In addition, Innovation Norway contributes financially. For more information contact olav.steinnes@inven2.com

WNT STEM CELL PATHWAY - TREATMENT OF COLORECTAL AND PANCREATIC ADENOCARCINOMA

Odin is a start-up company which will focus on developing small molecules targeting the Wnt stem cell pathway for the treatment of colorectal and pancreatic adenocarcinoma. The company has identified two lead series of novel chemical entities, which demonstrate powerful inhibition of the Wnt signaling pathway.

The Wnt pathway is dominant in various types of cancers, which explains the enormous interest and R&D effort from large industrial key players for this pathway. To date there are no small molecule inhibitors of the canonical Wnt pathway in clinical trials. The technology of the company is currently at a late preclinical stage and a clinical candidate nomination is estimated for the end of this year.

Odin was established in April 2010 with the aim to commercialize results from academic research made by Professor Stefan Krauss and centre for research based innovation (SFI-CAST).

The company is fully owned by Inven2 AS – the technology transfer office for Oslo University and Oslo University Hospital.

The company is currently funded by Inven2 and Innovation Norway and is searching for private financing in order to finance further research and development.

For more information, contact Benedicte.bakke@inven2.com

TELOMERASE – CANCER VACCINATION

Oslo University Hospital (Norwegian Radium Hospital) and Inven2 are developing a new cancer vaccine directed against telomerase. A novel method of selecting peptides, which elicits a strong immune response against cancer cells has been invented by Professor Gustav Gaudernack. Professor Gaudernack invented the first generation telomerase vaccine, GV1001, which is in phase III clinical trials. Telomerase is an enzyme overexpressed in approximately 90% of cancers and plays a key role in the immortality of cancer cells.

Telomerase is also expressed in cancer stem cells and targeting this antigen could therefore be an important tool to eliminate these cells which are resistant to conventional therapy.

By vaccinating the patient with peptide fragments of the human telomerase reverse transcriptase catalytic subunit (hTERT), an immune response is induced and immune cells attack the cancer cells. The vaccine induces a broad immune response and can be prepared as a standardized vaccine allowing wide-spread use and low production costs.

Clinical trials with the new vaccine are scheduled to be initiated by the end of 2010. The project has received funding for the clinical trial by the Norwegian Research council. Inven2 is looking for commercial partners for continued clinical and commercial development of the vaccine.

For more information contact Audun.Tornes@inven2.com



Kathrine Myhre and Oslo Medtech are building links with Shanghai.

MYHRE INJECTS PASSION INTO OSLO MEDTECH CLUSTER

Having guided Oslo Medtech from an idea to reality in less than a year, Kathrine Myhre continues to be a whirlwind of activity. Having just signed up the 65th member for the network and moved to new offices in the Forskningsparken, she has a full autumn ahead with a pioneering study tour for members to China and a joint meeting with the Swiss medtech industry in Oslo.

“China is a fascinating opportunity with the major investment planned in the country’s health system. So we are delighted to have been able to take our members to the Norwegian Health

and Life Science Innovation Expo at the Nordic Light House in Shanghai September 8-25,” says Myhre. *“This has been jointly organized by the Norwegian medtech clusters MedITNor and Oslo Medtech, together with Innovation Norway, KITH (Norwegian Centre for Informatics in Health and Social Care) and CHIMA (China Hospital Information Management Association of Chinese Hospital Association). Members exhibiting include Axis-Shield and Laerdal Medical. Over 5000 invitations have been sent out and we hope to lay the foundations for development contracts in China.”*

Back to Norway and on October 15, the Swiss President and King of Norway will preside over a joint meeting with the Swiss MedTech Association, again to investigate collaboration opportunities. This will be followed by a debate on the Future of Healthcare in Norway during Oslo Innovation Week in which Oslo Medtech and other clusters will participate.

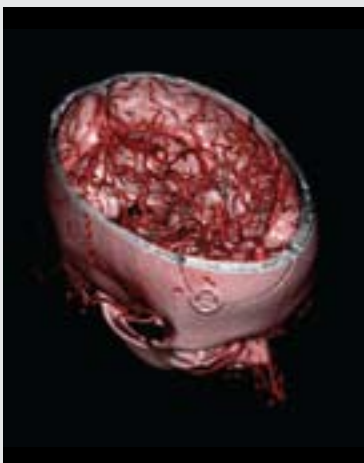
“We have to face these challenges. It has been calculated that 1 in 3 young people will have to work in healthcare in the future if we don’t introduce more technology! From our perspective this means using medtech not only to make hospitals more efficient, but also to help the elderly live longer at home.”

As if that was not enough, Kathrine finished by reeling off the upcoming “Hidden Diamonds” series of monthly meetings where members presented to each other. These are also open to others and details can be found on the website.

www.oslomedtech.no

SETRED’S 3D BRAIN IMAGING TRIALS SUCCESSFUL

Setred’s breakthrough “no-glasses” 3D imaging technology recently completed a successful trial in the Rikshospital in Oslo. Cerebrovascular neurosurgeons operating on brain aneurysms used the 3D display to delineate the complex network of blood vessels. This extra dimension facilitated the surgery considerably. Surgeons usually work with 2D x-rays which has obvious limitations. The cerebrovascular neurosurgical team at Riskhospitalet have been so pleased



with the clarity of the Setred 3D Display that for the second phase of the trial they have moved the display into the operating theatre itself rather than having it in an adjacent room.

www.setred.com

NATURALLY INSPIRED

Norwegian life sciences are going through a boom period - and not just in the medical sector which has naturally attracted attention worldwide through the success of companies such as Algeta, Clavis, PhotoCure, Lytix, Affitech and PCI-Biotech. The marine sector is equally important with major research into fish health and marine bioprospecting - exploring the sub Arctic waters off Norway’s coasts for exciting new organisms and compounds. And there is a budding industrial sector creating novel biofuels from a range of biomass sources. All of this is captured in “Naturally Inspired” a new brochure containing overviews by leading international life science journalists and a comprehensive directory of companies, institutions and other resources. We hope it will inspire you to look at what Norway has to offer.

For more information see

www.innovationnorway.no





Vanessa Chenouard has picked up a wealth of experience during her exchange visit to Norway.

NEW EXCHANGE SCHEME A SUCCESS

The groundbreaking collaboration between Oslo Cancer Cluster (OCC) and Toulouse which led to ECCP has led to a range of other initiatives, including an exchange programme between Oslo School of Entrepreneurship, the Gothenburg International Bioscience School (GIBBS) and the Paul Sabatier University (UPS) in Toulouse.

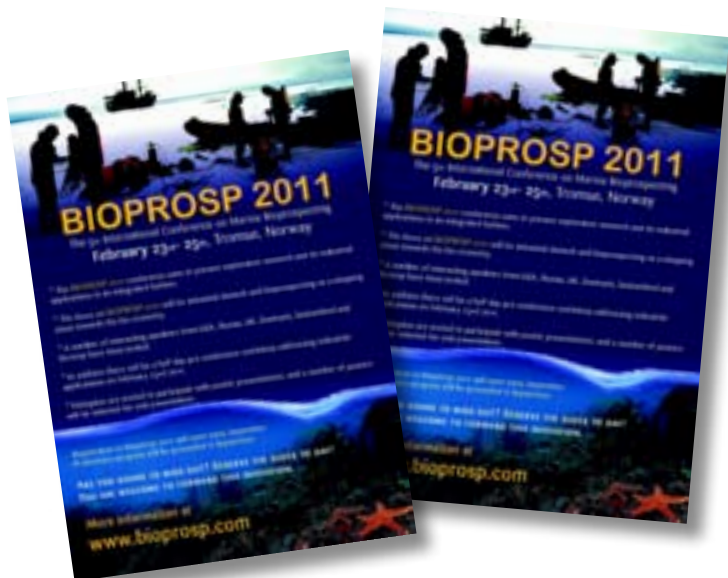
The first exchange for 6 months has just ended and involved 6 students on combined life sciences/entrepreneurship courses coming from France to Oslo to work in real case studies for OCC members – business and marketing plans etc - and then doing internships inside companies. According to Anders Tuv of OCC, the students have been delighted with their experience: “They all appreciated getting involved with real projects, while the companies benefitted from extra resource! We now have the next 6 lined up to go from Norway to France and already 12 students expressing interest in coming to Norway!” Vanessa Chenouard was one of this first wave and here reports on her experience.

“With 4 other students from the same master’s degree “Bio-engineering Applications for Health” I came to Oslo to join the class “Innovation and Entrepreneurship” during the spring semester 2010. We all came to Oslo with only a scientific background so it was very enriching to combine knowledge on entrepreneurship, innovation, and business in general, but also more specifically business in the bioindustries with our previous knowledge.

In addition, I had the chance to be an intern at OCC for 3 months working on the partnership between OCC and the Hamner Institutes for Health Sciences in North Carolina. When I joined the team, the project had just started so I was able to see how we develop such a project from the beginning.

I have also been involved with ECCP2010, on many different tasks such as looking for potential participants, preparing and sending invitations, and managing communication with the sponsors regarding their package.

Moreover, I am also helping to promote our 3 schools, UPS, GIBBS and Oslo during ECCP2010 and the value of their exchange programs to industry. We have called ourselves Inno-BioNet and you can learn more by visiting our booth at ECCP or contacting us at innobionet@gmail.com. “



MARINE BIOPROSPECTING CALL FOR PROPOSALS LAUNCHED

A new call for marine bioprospecting proposals from the Norwegian government is expected to attract a large number of submissions. While strengthening exploration of novel medical compounds, this initiative may also provide a stepping stone for industrial biotechnology. "Along with oncology, neuroscience and medtech, marine biotechnology can be a key sector for Norway," says Innovation Norway's head of life sciences Dr Ole J Marvik. "For example, I expect to see proposals on how to exploit two of our major untapped resources – fish waste and algae. These could be exciting "green" sources of both biofuels and fine chemicals and add to the renaissance of industrial biotech currently underway here through companies such as Borregard and Statoil." Biofuels from marine sources will also be one of the hot topics at the international BIOPROSP conference to be held in Tromsø in February next year.

More information at www.bioprospect.no

EVENT CALENDAR 2010

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

SEPTEMBER

- 8 – 15 Norwegian Healthcare & Life Science Innovation Expo, Shanghai, China
www.oslomedtech.no
www.nlh2010.com
- 15 – 17 ECCP2010, 2nd European Cancer Cluster Partnering, Oslo, Norway
www.eccp2010.com
- 20 – 21 First International Marine Ingredients Conference, Oslo, Norway
www.marineingredients2010.net

OCTOBER

- 8 – 9 Norwegian National Dementia Symposium, Oslo, Norway
www.nansenneuro.net
- 18 – 22 Oslo Innovation Week in Oslo, Norway
www.oiw.no
- 24 – 29 Norwegian Medtech/Biotech in Singapore and Malaysia
www.innovationnorway.no

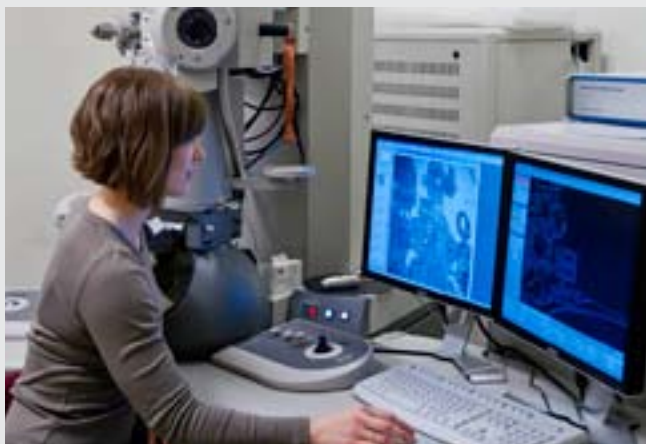


NANSEN TACKLES DEMENTIA

Explorer, humanitarian and neuroscientist, Fridtjof Nansen was never afraid of a challenge. Following in his footsteps, the new cluster that bears his name, the Nansen Neuroscience Network is tackling the minefield of issues around dementia.

Sponsored by Lundbeck, the first National Dementia Symposium will be held in Oslo October 8-9. With topics ranging from genetic signatures and diagnosis to ethics, DNA repair and future treatment, the Symposium also demonstrates leading Norwegian research in this field. Full details can be found at

www.nansenneuro.com



Neuro imaging research holds the key to diagnosing dementia.

Photo Gunnar F. Lothe, CMBN

OTIVIO

BUSINESS

Maintaining a patient's body core temperature can be a major challenge before, during and post treatment. Otivio (Optimal Temperature InVivo) has developed a water-filled sleeve which when placed over the patient's arm or leg, uses oscillating pressure to increase skin circulation. Increased blood flow to the surface of the skin is combined with a warm or cold medium. Warming the blood in the sleeve is sufficient to heat or cool the rest of the body. Unlike the current alternative of blankets and catheters, the Otivio sleeve can be used on conscious patients and is pain-free.

DEVELOPMENT STAGE:

The sleeve has been successfully trialled on abdominal surgery patients at the Oslo University Hospital. Patents have been granted and prototypes manufactured.

MANAGEMENT:

Iacob Mathiesen CEO, Erling Bekkestad Rein CCO

INVESTORS:

Founding management, private investors and BMI. Otivos' research is also partly funded by government grants from Norwegian Research Council (NæringsPhD), Innovation Norway (Forprosjektstøtte) and Næringssetaten in Oslo.



Photo: Otivio

PUBLICATION AND PATENTS:

Hypothermia during laparotomy can be prevented by locally applied warm water and pulsating negative pressure. Rein et Al., British Journal of Anaesthesia 98 (3): 331-6 (2007), US Patents: Pub. No. US 20090036959 (received notice of allowance)

NEXT MILESTONE:

Clinical results of trial on stroke patients at Oslo University Hospital expected end 2010

COLLABORATION OPPORTUNITIES:

Multiple market opportunities to be developed with partners www.otivio.com

Oslo Teknopol

- your key to the Oslo region

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

