

### 5<sup>th</sup> Central European Congress of Life Sciences EUROBIOTECH 2013

The 5<sup>th</sup> Central European Congress of Life Sciences EUROBIOTECH 2013 will take place on 8-11 October, 2013 in Cracow, Poland. The event is co-organized by the Agricultural University in Cracow, the Jagiellonian University, the Polish Federation of Biotechnology, the Biotechnology Committee of the Polish Academy of Sciences, Malopolska Center for Biotechnology and Targi w Krakowie Ltd.

The Congress will be a continuation of the conference cycle established in 2007, and dedicated to particular fields of biotechnology. The first EUROBIOTECH Congress in 2007 was devoted to green biotechnology. In 2008 the focus was on the issues of red biotechnology and in 2010 the congress was dedicated to white biotechnology. The leading theme of the previous EUROBIOTECH 2011 was the *Four Colours of Biotechnology*, and this year green and white biotechnology will be in the spotlight again.

The crucial issue that will be discussed during EUROBIOTECH 2013 is innovation in science and the problem of overcoming barriers in the transfer of scientific knowledge into practical applications. Leading scientists in their fields will be invited to give lectures on the state-of-the-art in their respective topics. Apart from Polish participants, scientists and students from other countries are expected, especially from Central Europe. The accompanying exhibition will bring together companies from different sectors of biotechnology, which will create an opportunity to exchange ideas and to establish cooperation between business and science.

Among the invited keynote speakers are: Professor Neal Stewart from the University of Tennessee (Knoxville, Tennessee, USA); Professor Frank Van Breusegem, from the Department of Plant Systems Biology at the Flanders Institute for Biotechnology (VIB) (Ghent, Belgium); Professor Luuk van der Wielen, Delft University of Technology (Delft, The Netherlands) and Professor Stanislaw Karpinski from Warsaw University of Life Sciences (Warsaw, Poland).

The complete program and information on abstract submission is available at <http://eurobiotech.krakow.pl>

### European Biotech Week

EuropaBio (Brussels, Belgium) and twenty other European biotechnology associations will celebrate together the 60th anniversary of the discovery of the structure of DNA. From September 30 to October 4, 2013 they will organize a series of events within the framework of *European Biotech Week*, highlighting the most important achievements in biotechnology and the opportunities they offer.

Launching the event, EuropaBio Secretary General Nathalie Moll stated: *European Biotech Week is an opportunity for all Europeans to communicate and learn more about what biotechnology can and is already doing to improve our everyday lives. In Europe we have the capabilities and scientific excellence in place to be a world leader in biotechnology. We aim to kickstart a sustained and open dialogue with European citizens to better explore how exactly biotechnology and our bioeconomy, already worth €2 trillion and employing an estimated 22 million people, is contributing to the improvement of our daily lives. Biotechnology is a technology developed for people by people and we hope all players involved in biotechnology will join us during the 1st week of October every year to showcase just that.*

Starting from 2013, *European Biotech Week* will aim to showcase and share the most important biotech innovations and discoveries that are taking place across Europe today. It will provide a unique opportunity for scientists, policy makers, business representatives, students and the general public to come together and share stories about how biotechnology has benefited their lives and what lies ahead for this innovative and dynamic industry.

The Commissioner for Research, Innovation and Science, Máire Geoghegan-Quinn welcomed the EuropaBio initiative: *I very much welcome the launch of European Biotech week. Crick and Watson's breakthrough discovery sixty years ago opened up a whole new area of scientific research. They laid the foundations for cutting edge European research that is now enabling scientists to develop medicines tailored to the specific needs of individual patients, to find more efficient ways to use scarce resources like water and to develop new ways of*

*producing essential chemicals and materials while protecting our environment. Europe is in the lead in many of these areas, and our biotechnology industries have an important role to play in Europe's economic growth and the provision of high quality, long term employment across a range of sectors. This is why we support biotechnology research through the Framework Programme, and as a signal of continued support, biotechnology has been identified as one of the Key Enabling Technologies (KETs) that will be supported under Horizon 2020.*

Jan Wisse, Chair of the EuropaBio National Associations Council (NAC), believes that the time is right for a more public dialogue to take place in Europe regarding biotechnology: *Biotechnology has the ability to be the foremost driver of economic recovery in Europe. Indeed, it is an industry that uniquely sits at the intersection of economic prosperity and the enhancement of quality of life. But it is up to our industry leaders to reach out to the public and better communicate the benefits that biotech is bringing to our everyday lives, not only in providing much required financial stimulus but in everyday needs such as our feeding, fuelling and healing.*

For more information, visit the *European Biotech Week* website at [www.biotechweek.org](http://www.biotechweek.org).

#### **Source**

EuropaBio press release, 2 October 2012, [www.europabio.org](http://www.europabio.org)

### **European Symposium on Biopolymers – ESBP2013**

The European Symposium on Biopolymers (ESBP 2013) will be held in Lisbon, Portugal, on 7-9 October, 2013. The ESBP is the most important European conference on biopolymers. In recent years, significant R&D investment has been made in this area, leading to important advances in new products and applications, contributing substantially towards the sustainability of the polymer industry. This event will bring together scientists, researchers and national and international industrial professionals who will present and discuss the most recent achievements in the area of biopolymers, as well as the main on-going challenges and opportunities within the industry.

ESBP2013 will focus mainly on three topics: biopolymer production; processing technologies and poly-

mer stability; and applications of biopolymers and biodegradable polymers. Within the framework of the *Promoting Synergies between Academia and Industry* session, there will also be a round table discussion with the participation of researchers and representatives of biopolymer companies.

ESBP2013 is organized jointly by the Faculty of Science and Technology at the New University of Lisbon (FCT-UNL) (Lisbon, Portugal), the European Federation of Biotechnology (Barcelona, Spain), EcoBioCAP FP7 project, and REQUIMTE – the largest Chemistry and Chemical Engineering network in Portugal.

More information on the conference can be accessed at [www.esbp2013.org](http://www.esbp2013.org)

### **Functional food symposium**

Functional Food Center Inc. (Richardson, Texas, USA), together with the University of California (Los Angeles, CA) (UCLA), announce their 14th International Conference *Functional Foods and Bioactive Compounds in the Management of Chronic Inflammation: Science and Practical Applications* to be held at UCLA on 20-22 of August, 2013. Functional Food Center Inc. is a founder of the Academic Society for Functional Foods and Bioactive Compounds (ASFFBC), a community of medical doctors, scientists, dietitians, nutritionists, and other food and medical industry professionals dedicated to the research and development of functional and medical foods, bioactive compounds, nutraceuticals, and the discovery of new ingredients and scientific techniques.

The goal of the conference is to bring together experts in medicine, biology, and the food industry to discuss the contribution of functional/medical foods and bioactive compounds to the prevention and management of chronic inflammation. Sessions to be held during the conference include: *Functional Food Ingredients: Sources and Potential Benefits in Public Health; Bioactive Compounds and Chronic Inflammation; Functional and Medical Foods in the Management of Chronic Inflammation; and Research and Development of New Functional Food Products*. Early registration and abstract submission deadline is 20 May, 2013.

More information on the event is available at <http://functionalfoodscenter.net/14th-international-conference.html>

## HeLa genome and transcriptome deciphered

A team led by Lars Steinmetz, a geneticist at the European Molecular Biology Laboratory in Heidelberg, Germany, sequenced the popular *Kyoto* version of the HeLa cell line and have compared the sequence with that of a reference human genome. The scientists have discovered widespread abnormalities in both the number and structure of chromosomes, as well as factors commonly associated with cancer cells, such as losing normal copies of genes. In particular, the researchers have found that countless regions of the chromosomes in each cell were arranged in the wrong order and had more or fewer copies of genes.

The scientists have determined single nucleotide variants (SNVs), structural variants (SVs), and copy number variations (CNVs) along the genome. They have identified approximately 4.5 million SNVs and 0.5 million indels, in addition to around 3000 SVs including deletions, insertions and interchromosomal translocations. They have also observed the phenomenon of extensive genomic rearrangements, known as chromothripsis, which is present in 2-3% of all cancers. These massive rearrangements have been observed on chromosomes 5, 19, X and especially on chromosome 11. HeLa transcriptome data showed that almost 2000 genes expressed higher levels than the physiological range of 16 human tissues. The functions enriched among these genes are related to proliferation, transcription and DNA repair.

HeLa was the first cell line established in culture and has become the world's most commonly used human cell line. HeLa has served as a standard for understanding many fundamental biological processes and contributed to over 60 000 publications. While many of these studies have led to breakthroughs in molecular biology, including the development of vaccine against polio, these studies were designed and analyzed without genomic sequence information for the HeLa cell line. Now, the comprehensive characteristic of the HeLa genome and transcriptome, published in March 2013 in *G3: Genes, Genomes and Genetics*, has highlighted the importance of accounting for the abnormal characteristics of HeLa cells in experimental design and analysis, and enables the possibility of refining the use of HeLa cells as a model of human biology. The newly obtained results may also allow reinterpretation of previously generated data.

## Source

Landry J., Pyl P.T., Rausch T., Zichner T., Tekkedil M.M., Stütz A.M., Jauch A., Aiyar R.S., Pau G., Delhomme N., Gagneur J., Korbel J.O., Huber W., Steinmetz L.M. (2013) *The genomic and transcriptomic landscape of a HeLa cell line*. Advanced online publication in *G3: Genes, Genomes and Genetics*, 11 March 2013, DOI: 10.1534/g3.113.005777

## PharmaSea project in search of novel therapeutic molecules

Scientists from the United Kingdom, Belgium, Norway, Spain, Ireland, Germany, Italy, Switzerland, Denmark, China, New Zealand, South Africa, Chile and Costa Rica will work together to collect and screen samples of mud and sediment from huge, previously untapped oceanic trenches. The recently launched PharmaSea project is a large-scale, four-year study, supported by more than €9.5 million of European Union funding. This project brings together 24 partners from industry, academia and non-profit organisations. The international team of scientists is led by Professor Marcel Jaspars of the University of Aberdeen in Scotland, and coordinated by Dr Camila Esguerra of the Catholic University of Leuven in Belgium.

The PharmaSea project is focused on biodiscovery research which will be followed by the development and commercialisation of new bioactive compounds from marine organisms to evaluate their potential as novel drug leads. The main aim of the project is to screen thousands of novel small molecules isolated from deep-sea sponges and bacteria to identify potential therapeutics for three indication applications – inflammation, infectious diseases, and central nervous system disorders. Professor Marcel Jaspars explained that *there's a real lack of good antibiotics in development at the moment. There hasn't been a completely new antibiotic registered since 2003. If nothing's done to combat this problem we're going to be back to a "pre-antibiotic-era" in around ten or twenty years, where bugs and infections that are currently quite simple to treat could be fatal*. There is also a pressing need for new anti-epileptic drugs, since over 30% of patients with epilepsy do not respond to the currently available therapies. Additionally, it may be that novel ingredients for nutritional or cosmetic applications will be discovered in this study. The project will hope-

fully provide ground-breaking discoveries, since so far only a few samples have ever been taken from the deep-sea trenches and investigated.

PharmaSea partner Deeptek Ltd. (Newport-on-Tay, Scotland) will provide advanced instrumentation for sampling from the ocean floor at depths of up to 9 kilometres. The first field tests will be carried out in autumn 2013 in the Atacama Trench in the Eastern Pacific Ocean, about 160 kilometres off the coast of Chile and Peru. The PharmaSea team will also search the Norwegian Arctic and the Antarctic waters. Deep trenches will be also accessed near the coasts of New Zealand and China.

#### Source

PharmaSea project press release, 13 February 2013,  
<http://www.pharma-sea.eu>  
 Catholic University of Leuven newsroom,  
<http://www.kuleuven.be/english/news>

### Report on genetically modified crops in 2012

The International Service for the Acquisition of Agri-Biotech Applications (ISAAA) has released a new report *Global Status of Commercialized Biotech/GM Crops: 2012*. The publication provides detailed information about genetically modified (GM) crops (also referred to as *biotech crops* in the cited report) planted worldwide in the year 2012 and compares these data with previous years.

According to ISAAA estimations, 170.3 million hectares of biotech crops were grown globally in 2012, up from 160 million hectares in 2011, an annual growth rate of 6%. The year 2012 marked an unprecedented 100-fold increase in biotech crop hectareage from 1.7 million hectares in 1996, when GM crops were introduced commercially, which makes it the fastest adopted crop technology in recent history.

Of the 28 countries which planted biotech crops in 2012, 20 were developing and 8 were industrial countries. Among them were two new countries, Sudan and Cuba which planted biotech crops for the first time. Moreover, since 1996 an additional 31 countries have granted regulatory approvals for biotech crops for import, food and feed use and for release into the environment.

In 2012, Germany and Sweden stopped planting the GM potato Amflora because it ceased to be marketed. Also last year, Poland discontinued planting GM maize because of regulatory inconsistencies in the interpretation of the law on planting approvals between the European Union and Polish authorities.

Interestingly, for the first time in Cuba, farmers grew 3 000 hectares of hybrid Bt maize in a *regulated commercialization* initiative in which farmers seek permission to grow biotech maize commercially. The initiative is part of an ecologically sustainable pesticide-free program featuring biotech maize hybrids and mycorrhizal additives. Bt maize, with its resistance to the major pest, fall armyworm, was developed by the Havana-based Institute for Genetic Engineering and Biotechnology (CIGB) (Havana, Cuba).

Over 90% of farmers growing GM crops are small resource-poor farmers living in developing countries. Planting Bt cotton significantly increased their income per hectare and also halved the number of insecticide sprays, thus reducing farmer exposure to pesticides. Moreover, in 2012 developing countries grew 52% of global biotech crops (as compared with the industrial countries at 48%). This is contrary to the predictions of critics who, prior to the commercialization of the technology in 1996, claimed that biotech crops were only for industrial countries and would never be accepted and adopted by developing countries.

In 2012, the United States continued to be the lead producer of biotech crops globally, with 69.5 million hectares, followed by Brazil with 36.6 million hectares. Interestingly, the ISAAA publication reports that the Brazilian public sector institution EMBRAPA (Empresa Brasileira de Pesquisa Agropecuária, Brasil, Brasil) gained approval to commercialize a home-grown biotech virus resistant bean, developed entirely from its own resources, thus demonstrating an impressive technical capacity to develop, deliver and deploy a novel biotech crop.

The ISAAA report also highlights the future perspectives for GM crops, with an emphasis on the development of drought tolerant plants.

The executive summary of the report is available at <http://www.isaaa.org>