

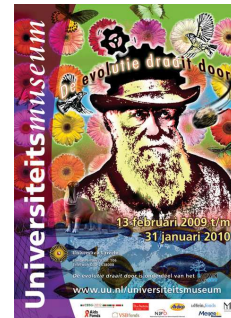
NEWSLETTER: Highlights CBSG2012 Jan – July 2010

The Centre for BioSystems Genomics 2012 is a public – private partnership in the life sciences with responsibility to carry out an integrated programme of innovative genomics research to the future benefit of industry and society. Next to its own fundamental and applied research activities however, CBSG2012 does much, much more. We take a central or supporting role in a wide range of additional community-related activities, many of which are focused on enthusing school children for plant science and broadening undergraduate education. In this short document we give an overview of some of the main scientific and societal highlights from the last 6 months. These emphasize the wider impact of our activities and illustrate the added value of having a large, multi-partner, coordinated and properly-embedded research initiative. This not only helps enhance interaction at both fundamental and applied levels but also helps create a positive image and focal point for plant genomics research to the wider community.

Robert Hall
Managing Director, CBSG2012

CBSG rounds off Darwin Year initiative

The exhibition on *'De evolutie draait door'* (*Ongoing evolution*) at the UU Science Museum, sponsored by CBSG closed its doors in March 2010. CBSG provided materials and information for a significant part of this exhibition on Potato and Phytophthora and Francine Govers was a scientific advisor. The exhibition that ran for almost a year, was a huge success and attracted a record number of **ca 50,000 visitors**, many from school classes. In collaboration with DuRPh, CBSG also provided one of the public lectures linked to this exhibition on the ethics of modern food production.



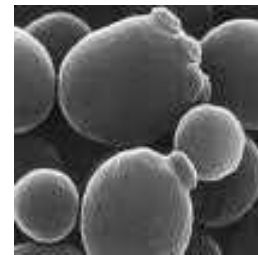
CBSG, PGSC and EU-SOL announce the release of the first drafts of the complete potato and tomato genomes.

CBSG, PGSC and EU-SOL have coordinated the sequencing of the genomes of potato and tomato using next generation technologies. This was carried out in just a few months. This multinational effort involved support from several other countries as well as major technical support from Keygene, Roche and Applied BioSystems. These first annotated versions of the genomes were launched during the PAG Conference in San Diego in January 2010 and improved / expanded versions have been released regularly since. This represents a major leap forward in research on these crops with huge application potential and places the Netherlands central in these global initiatives.

Two back-to-back papers are currently being prepared for publication in **Nature**.

CBSG and Kluyver Centre join forces

Researchers from the Centre for Biological Systems Genomics and the Kluyver Centre for Genomics of Industrial Fermentation have initiated a collaboration to develop yeast cells as production platforms for complex plant metabolites. The primary goal in the first phase of the research, which is supported by a Horizon grant, is to reconstruct plant pathways for anthocyanin production in yeast cells. These engineered yeast cells will then be used as a screening platform to synthesize a large number of plant-derived metabolites and to explore their biological activities. Following on from this initiative the CBSG scientists have also had an **EU project** (ATHENA) granted on this topic.



CBSG secures 2 Horizon breakthrough projects

These NGI projects aim to achieve breakthroughs in science using wholly innovative genomics approaches. The projects each have a budget of 100.000€ and are evaluated based on innovation and scientific quality of the project and the applicant. The proposals build upon CBSG activities and were granted to Richard Immink and Romyana Karlova.

1. "Dissecting the fruit formation transcriptional regulatory network". (Richard Immink, PRI-Bioscience)

2. "The tomato RNA degradome in fruit development and domestication" (Rumyana Karlova; PRI-Bioscience/WU-Molbi)

Both projects focus on molecular aspects of tomato fruit development and the fruit ripening process and are aimed at generating **new approaches and tools** to help breeders generate improved tomato varieties.

CBSG supports several outreach activities

- The European Plant Sciences Organisation (EPSO) is an important lobbying organisation within the EU and helps formulate future research strategies at multi-national level. CBSG, PSG and TTI-GG have together financed the revamping of the **EPSO web interface** to improve their external communication capacity.
- CBSG has also co-financed the Benelux Next Generation Sequencing Users Group organised by NBIC.
- In March, CBSG joined forces with TTI-GG and the Netherlands Metabolomics Centre to organise a workshop for industrial scientists on the potential of plant metabolomics research and application.
- CBSG sponsored the 2010 Eucarpia meeting on Potato Breeding held in Wageningen in June 2010 which was attended by ca 100 scientists involved in potato breeding and improvement.

CBSG publishes twice in Science!

Orchestration of Floral Initiation by APETALA1

Kerstin Kaufmann[#], Frank Wellmer, Jose M. Muiño[#], Thilia Ferrier, Samuel E. Wuest, Vijaya Kumar, Antonio Serrano-Mislata, Francisco Madueño, Pawel Krajewski, Elliot M. Meyerowitz, Gerco C. Angenent[#], and José Luis Riechmann ([#], CBSG-NGI) **Science 2010**

This paper describes two genes which have been identified as key genes in the transition from vegetative to floral growth which, when mutated, lead to a cauliflower-like appearance.



Conserved fungal LysM effector Ecp6 prevents chitin-triggered immunity in plants

Ronnie de Jonge,[#] H. Peter van Esse,[#] Anja Kombrink, Tomonori Shinya, Yoshitake Desaki, Ralph Bours, Sander van der Krol,[#] Naoto Shibuya, Matthieu H.A.J. Joosten,[#] and Bart P.H.J. Thomma[#] ([#], CBSG-NGI) **Science 2010**

This paper describes a novel protein from the fungal plant pathogen *Cladosporium fulvum* which is a virulence protein that acts as a stealth factor by preventing the activation of chitin-triggered host immunity in plants.



CBSG organizes the largest ever International Metabolomics Congress

CBSG joined forces with the Netherlands Metabolomics Centre to organize the 6th International Metabolomics Congress in June, 2010 in the RAI in Amsterdam (www.metabolomics2010.com). This congress brought together, for the first time, all major players in the medical, microbial and plant research fields and was attended by ca **700 scientists**. Prof. Leroy Hood, Director of the USA Systems Biology Institute gave the Keynote lecture and was later interviewed by the NRC, C2W, Bionieuws and Natuur en Techniek.

CBSG secures NGI Distinguished Scientist Fellowship

CBSG has been awarded a prestigious Distinguished Scientist Fellowship for CBSG project leader **Prof. Harro Bouwmeester**. This award is meant to fund innovative, high-ranking Dutch scientists to reside and work abroad for a maximum of one year during which they act as Ambassador for NGI / CBSG, establish new collaborations and learn new skills. Prof. Bouwmeester will visit UC Davis in California for 5 months in 2011 to develop new molecular techniques for implementation in his laboratory. For part of his stay he will be joined by his CBSG PhD student, also funded through this fellowship.



CBSG research has direct impact on private R&D Investments

At the Spring CBSG Summit the results of an independent external evaluation of the impact of its research within industrial partnership were presented. All 15 private partners were fully cooperative. Anonymity was guaranteed through use of a consultancy specialized in quantitative analysis and management of innovation portfolio returns. Crop focus, size of the company, and place in the value chain all played a role in determining the exact form of the added value of CBSG. Results showed that CBSG research has had a direct positive effect on R&D investments, catalysed the development of new products and reduced innovation cycle time, leading to a strengthening of the economic position of the private potato and tomato partners.

CBSG continues to support Young Scientist activities

CBSG was initiator of the Mobile DNA labs initiative which has already reached out nationally to more than **65,000 school children**. The WU / CBSG lab continues to be one of the first to be fully booked each year. CBSG and DuRPh also organised one of the workshops as part of the national DNA lab day in Utrecht which was attended by ca **200 school teachers**. In addition, CBSG also sponsors other initiatives aimed at young scientists. For example, CBSG is sponsor of the annual EPS Summer School and this year also sponsors an undergraduate to be able to attend the Plant Breeding Summer School for BSc students.



CBSG spin-out NSure continues to grow and prosper

The CBSG diagnostics spin-out company NSure announced the initiation of a joint venture SureTech Chile together with 3 Chilean partners active in fresh food logistics. This company has a lab in Chile which has exclusive rights to exploiting NSure technology in South America. NSure is also currently active in establishing activities in USA. In July it was announced that NSure has been nominated for the 2010 Food Valley Award.

