
INTERNATIONAL WORKSHOP

REGISTRATION

Participation is free of charge. However, please register for the workshop by sending an e-mail to:

bende.astrup@agrsci.dk.

In the registration e-mail please state: Name, company, address, e-mail and telephone number.

Deadline for registration is 16 November 2009.

VENUE

Department of Genetics and Biotechnology
Research Centre Flakkebjerg
Forsøgsvej 1
DK-4200 Slagelse

The Auditorium

For directions on how to find Research Centre Flakkebjerg see:

<http://www.agrsci.org/content/view/full/31973>.

CISGENESIS

Genetic modification carries the promise of generating new cultivars of crops with better tolerance to biotic and abiotic stress, improved nutrient use efficiency, improved quality as food and feed and with less impact on the environment. However, in Europe in particular the technology has been met with substantial scepticism among the general public and in consequence thereof also by the growers, the agro industry and the retailers. One of the major concerns about transgenic crops relates to the mingling of genetic materials between species that cannot hybridize by natural means. This reservation is often linked to a notion of respect for nature and also appears to be interlinked with fears for potential health risks and for spreading of new gene combinations in the environment.

The *Cisgenesis* concept has been introduced to meet these reservations (see www.cisgenesis.com). In contrast to *Transgenesis*, where genes and DNA sequences are moved across the species barriers, *Cisgenesis* implies that the plants are transformed with its own genetic materials only or genes from species with which it can intercross. Furthermore, all "helper" genes and gene sequences of foreign nature must be removed from the transgenic plant lines. Crops that are genetically modified according to the *Cisgenesis* concepts are accordingly very similar to those generated by conventional breeding.

The implementation of the *Cisgenesis* concept carries the promise that transgenic crops developed according to these guidelines eventually can be deregulated to a level where a minimum of risk assessment and segregation is required. In consequence, it may be economically realistic to genetically modify a number of traits in a range of species that at present are outside the scope of breeders but considered useful by the general public. Several of these traits are at present impossible or very costly to breed for by conventional breeding methods.

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INTERNATIONAL WORKSHOP

CISGENESIS

A new concept for
generating useful and
acceptable genetically
modified crops



November 25, 2009



DEPARTMENT OF GENETICS
AND BIOTECHNOLOGY

Faculty of Agricultural Sciences
Aarhus University

I hereby would like to invite you to the International Workshop "Cisgenesis: A new concept for generating useful and acceptable genetically modified crops" to be held at Research Centre Flakkebjerg on November 25, 2009.

In 2007 the four-year project "Cisgenic barley and wheat for animal feed" was initiated based on funding from the Danish Food Industry Agency and Plant Biotech Denmark. We had two major objectives: 1) To develop new generations of feed barley and wheat, genetically modified for improved phosphate bioavailability and nitrogen use efficiency, based on the concept of *Cisgenesis* where the plant is transformed only with its own genetic materials or genes from species with which it can intercross. 2) To assess if such crops provide environmental benefits, have economic advantages and are perceived as useful and ethical acceptable by the Danish citizens. To achieve these objectives we assembled a research consortium that integrates expertise in plant molecular biology, physiology, breeding, downstream handling and processing, economy, sociology and ethics.

Partners:

Partner 1: Professor Preben Bach Holm, Dept. of Genetics and Biotechnology, AU-DJF

Partner 2: Professor Jan Schjørring, Dept. of Agriculture and Ecology, KU-LIFE

Partner 3: Professor Peter Sandøe, Dept. of Food and Resource Economics, KU-LIFE

Partner 4: Associate Professor Jesper Lassen, Dept. of Human Nutrition, KU-LIFE

Partner 5: Specialist Advisor Kathrine Hauge Madsen, Danish Agricultural Advisory Service, The National Centre

Partner 6: Senior Advisor Morten Gylling, Dept. of Food and Resource Economics, KU-LIFE

Partner 7: Director Kurt Hjortsholm, Sejet Plant Breeding

In the present workshop we would like to present the results we have obtained so far within the project. We are furthermore most grateful that three internationally recognized scientists have been willing to come and present their research. Dr. Henk Schouten is one of the founders of the *Cisgenesis* concept, Dr. Anton Haverkort is project manager for the potato late blight resistance project DurPh that is based on *Cisgenesis* and Dr. Huw Jones has been involved in a very large number of projects relating to genetic modification of wheat based on modulation of wheat gene activities.

Preben Bach Holm
Project leader

PROGRAMME

8:30 – 9:00 Coffee and registration

9:00 – 9:15 Welcome and introduction to the workshop and the Danish project "Cisgenic barley and wheat for animal feed"
Preben Bach Holm, AU-DJF

9:15 – 9:50 The concepts of cisgenesis and intragenesis
Henk Schouten, Wageningen

Session 1: Technologies and projects

9:50 – 10:25 The DurPh project. Production of late blight resistant potatoes
Anton Haverkort, Wageningen

10:25 – 10:45 Coffee

10:45 – 11:20 Current status of cereal transformation in the European Community
Huw Jones, Rothamsted Research

11:20 – 11:55 Cisgenic strategies and production of barley with improved phytase activity
Inger Bæksted Holme, AU-DJF

11:55 – 12:30 Cisgenic barley with improved nitrogen use efficiency
Thomas Kichey, KU-LIFE

12:30 – 13:30 Lunch

Session 2: Sociology and public perception

13:30 – 14:05 How will cisgenic crops be received by the public and by the regulators: A literature review
Peter Sandøe and Jesper Lassen, KU-LIFE

14:05 – 14:40 Public perception of the cisgenesis concept
Henrik Mielby, KU-LIFE

14:40 – 15:00 Coffee

Session 3: Handling and economic aspects of deregulated cisgenic crops

15:00 – 15:30 Down-stream handling and segregation
Kathrine Hauge Madsen, The National Centre

15:30 – 16:00 Economy
Morten Gylling, KU-LIFE

16:00 – 16:15 Closing the meeting
Preben Bach Holm, AU-DJF