Transcriptional control of lifespan

Enhanced plant productivity through control of lifespan

CAU Kiel, Germany 8 - 17 May
Tuesday 8 May 2012

Bildungszentrum Tannenfelde

15:00  **Diter von Wettstein**

Recent research achievements in barley and wheat

1. Concerted action of two novel effectors activate the \textit{Rpg1} mediated stem rust resistance in barley
2. Engineering wheat for celiac patients

17:30  Sportive activities, e.g. walking in the forest, biking, golf

19:30  dinner

Wednesday 9 May 2012

Bildungszentrum Tannenfelde

9:15-10:00  **Michael W. Christiansen**

General introduction in plant transformation

10:15-11:00  **Diter von Wettstein**

1. Transformation of microspores by electroporation for production of doubled haploid, i.e. homozygous transformants in barley and wheat
2. Transformation with activator-like effector nucleases – mutation, deletion, activation of specific nucleotides in any targeted gene of any genome

11:30-12:00  discussion

12:30  lunch break

14:00  Transfer with Julien and Mirl to the University of Kiel for practical exercises on plant transformation
Wednesday 9 May 2012

University of Kiel / Botanical Institute / Room 346/347

14:30  Michael W Christiansen

1. Practical introduction to plant transformation
2. Transient transformation with *Agrobacterium* of immature barley embryos.
3. Demonstration of transformed barley calli at different stages of development.

Joanna Melonek

Transient transformation of onion epidermal cells by biolistic bombardment

~ 18:00  Return to Tannenfelde

19:00  Barbecue

Thursday 10 May 2012

Departure after breakfast

9:00  Visit of Norddeutsche Pflanzenzucht Hans-Georg Lembke KG (NPZ)

Hohenlieth, D-24363 Holtsee

Lunch at NPZ

Return to CAU by Julien and Mirl
15:00  **Per Gregersen**
Gene expression and transcription factors involved in senescence regulation

Room 346/347
16:00  **Per Gregersen / Michael W Christiansen**
qPCR for studying gene expression patterns:
RNA isolation from senescing and non-senescing leaf samples.

18:00  **Joanna Melonek**
Microscopical analysis of transformed onion epidermal cells

**Transfer of participants to their hotels in Kiel.**
Hotel InterCity or Hotel Ghotel

**Friday 11 May 2012**

University of Kiel
Room 346/347
9:00  qPCR experiment (continued)

1) cDNA synthesis
   Overview: Controls, primer design etc *(Colette Matthewman)*

2) qPCR plate setup (including tests of gene expression from transgenic plants → running of PCR
   Overview: Considerations on the analysis of qPCR data *(Per Gregersen)*

3) Data analysis of qPCR data: primer efficiency, reference gene analysis, ddCt estimation. Discussion of results *(Per Gregersen)*
Monday 14 May 2012

University of Kiel

Room E 49

9:15  **Steve Scofield**

Virus-induced gene silencing

13:30  Visit of the greenhouse

14:00  **Maria Mulisch**

Ultrastructural analysis of chloroplasts

Group 1 (40min): Visit of Central Microscopy
Group 2-4: Preparation of leaf sections *(Room E10)*

16:00  **Christine Desel** *(Room E10)*

Light Microscopy

(1) Basics

Senescent barley leaves

(2) Fluorescence microscopy

Transgenic barley plants overexpressing *PTP-RBCS-GFP*
Tuesday 15 May 2012

Room E345

9:15-11:00  **Klaus Humbeck**

Epigenetics I

Room 346/347

14:00  Practical exercises in groups

**Bianka Janack / Klaus Humbeck**

Immunocytology of histone modifications I

**Christine Desel**

Life cell imaging of chloroplast degradation (*ZM / CLSM*)
using transgenic barley plants overexpressing *PTP-RBCS-GFP*

Wednesday 16 May 2012

Room E49

9:15-11:00  Klaus Humbeck

Epigenetics II

Room 346/347

14:00  Practical exercises and demonstration in groups

**Bianka Janack / Klaus Humbeck**

Immunocytology of histone modifications II

**Maria Mulisch**

Group 3-4 (each 40min):
Demonstration of chloroplasts, gerontoplasts (*ZM / TEM*)
Thursday 17 May 2012

Room E49

Evaluation of data, oral presentations, examination, protocol writing