SFB 924-/BZR – Kolloquium Mittwoch, 28. Juni 2017 14:00 Uhr, H 53



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"Genetic and environmental control of inflorescence development in barley"

The control of flowering is central to reproductive success in plants, and has a major impact on grain yield in crop species. Variation in flowering time was crucial for the successful expansion of barley cultivation from the Fertile Crescent to temperate climates. Wild barley *H. vulgare* ssp. *spontaneum*, the progenitor of cultivated barley originated in the Fertile Crescent and is still a widespread species found over the Eastern Mediterranean basin and Western Asiatic countries. Wild barley germinates in autumn and needs a period of cold (vernalisation) to flower in spring and mature in late spring. This vernalisation requirement prevents flowering during winter for the protection of the floral organs from cold. After exposure to cold and completed vernalisation, long days in spring accelerate reproductive development and thus ensure seed production before the onset of summer drought. The



selection of early flowering genotypes which do not respond to photoperiod or vernalisation, and are characterised by the presence of the so called "*earliness per se*" (*eps*) or "*early maturity*" (*eam*) genes.

Major genes controlling reproductive development in response to vernalisation (*Vrn-H1*, *Vrn-H2*) and photoperiod (*Ppd-H1*) have been described in barley and wheat. However, the flowering time network and the genetic control of the shoot apical meristem (SAM) development is not very well understood in temperate cereals. We use a combination of quantitative genetics, macroscopic and microscopic phenotyping, QTL mapping, and high-throughput sequencing of the barley transcriptome and genome to understand the genetic control of reproductive development and adaptation in barley.

Host: Prof. Dr. T. Dresselhaus



