Thursday, September 29, 2016
9:30-10:00 a.m.

The molecular networks controlling seasonal flowering of wheat and barley

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Variation in seasonal flowering-behaviour plays a key role in adapting wheat cultivars to different climates and geographical regions. This is illustrated by the history of the Australian grains industry, where English wheats were initially introduced to the southern colonies. These wheats required prolonged winter cold (vernalization) to flower and consequently struggled to flower and produce grain in the warm Australian climate. The introduction of genes that reduce vernalization requirement was a critical step in producing wheats adapted to the Australian climate and this allowed a massive expansion in the area of Australian wheat cultivation. This presentation will highlight the central role of the VERNALIZATION1 gene in controlling the vernalization requirement of wheat. The importance, both historical and current, of this gene to the grains industry will be discussed. Other topics addressed will include the basis for day-length sensing in cereals and the challenges and joys of working with polyploid crop genomes. Key messages will be the importance of research efforts focussed directly on cereals and the need to carefully interpret knowledge developed in laboratory model systems when studying the biology of field-grown crop plants.