doubling. These plants were screened by PCR amplification using multiple maize TE specific primers. Three of the 64 plants from the Louise/Maize Activator crosses showed a maize-specific, PCR fragment amplified using *Ac*-specific, PCR primers. Similarly, four of the 40 plants derived from PBW 621/Maize Mutator crosses showed a maize-specific ,PCR fragment amplified using *Mu*-specific PCR primers. Amplified fragments were sequenced to confirm their specificity. All the fragments were matching up with their corresponding maize transposable element sequences. DNA gel blot analysis and inverse PCR are underway to confirm the integration and subsequent transposition activities. The most current status of the project will be presented at the meeting.

Poster 79. The wheat meiotic cohesin gene TtRec8 and its role in haploidy-dependent, unreductional meiotic cell division.

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Meiosis is a specialized cell division that halves chromosomes and generates haploid gametes in eukaryotes. It ensures genomic integrity and generates genetic variability. Variation of the meiotic process leads to aneuploidy and polyploidy. Unreductional meiotic cell division (UMCD) was observed in the polyhaploid of the tetraploid wheat cultivar Langdon (LDN) (*Triticum turgidum* L.) and its interspecific hybrid with *Aegilops tauschii*. This haploidy-dependent UMCD gives rise to unreduced gametes, leading to polyploidy. It has been considered a major mechanism of polyploidization in wheat. The meiotic cohesin gene *Rec8* has been proven to play a significant role in kinetochore orientation and chromosome segregation at meiosis I in model species. In the present study, we attempted to understand the function of the *Rec8*-like gene in the meiotic cell division of wheat and determine the role of this gene in the onset of the haploidy-dependent UMCD. We cloned the *Rec8* homologue in LDN, designated *TtRec8*, and developed the polyclonal antibody against the TtRec8 protein in rabbit. *TtRec8* exhibited an expression pattern similar to *Rec8* in model species as revealed by real-time PCR and Western blotting throughout the meiotic process in anthers. In addition, the TtRec8 protein exhibited analogous kinetics of the meiotic cohesin *Rec8* as revealed by the immunolocalization of the cohesion protein on chromosomes over the meiotic stages. Two homoeoloci of *TtRec8* were identified on chromosome 1A and 1B. We have been determining the map location of this gene on the chromosome in a doubled haploid population of tetraploid wheat. Meanwhile, we have been investigating the expression profiles of *TtRec8* and the kinetics of the TtRec8 protein in an LDN haploid as well as the interspecific hybrid of LDN with *Ae. tauschii*. This will provide new insights into the role of this meiotic cohesin gene in the onset of the haploidy-dependent UMCD in wheat.