

# Special Seminar

Date and Time: July 16, 2020, 15:00-16:00

Place: Multi purpose room, ALRC

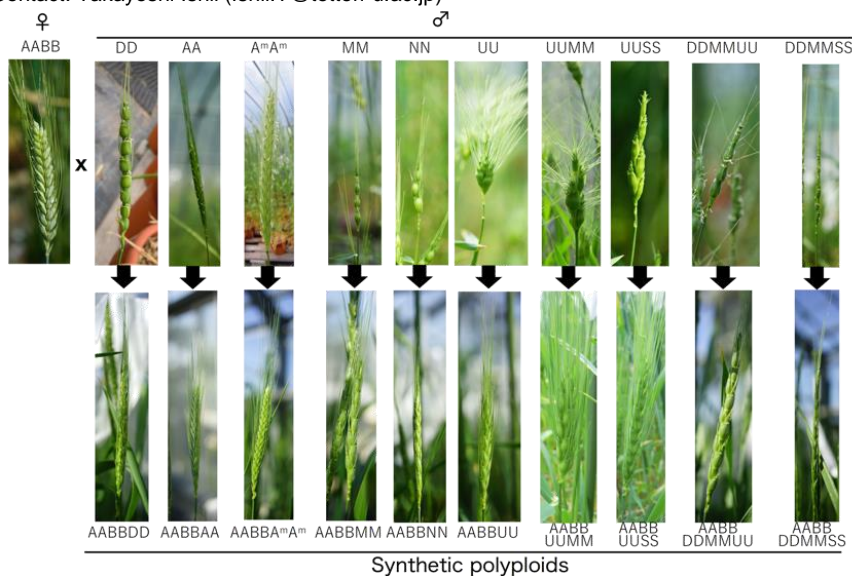


Dr. Kentaro Yoshida\* and Dr. Prof. Shigeo Takumi  
(Graduate School of Agricultural Science, Kobe University, Japan) \*Speaker

## Phenotypic effects of genome diversity in nascent synthetic polyploids

Wild relatives of crops have latent stress tolerance and attractive characteristics that have not been utilized by human beings. Allopolyploidization lays the establishment of wheat and its relative species. This evolutionary process can be reproduced through artificial crosses between these species. Introduction of genomes of wild relatives via artificial allopolyploidization makes wheat acquire stress tolerance and novel attractive features. We are producing nascent synthetic polyploids derived from interspecific crosses between durum wheat and the wild wheat species. Phenotypic diversity of synthetic polyploids reflected intraspecific diversity as well as genome differentiation in their wild parental species. To understand genetic factors in the wild relatives underlying phenotypic diversity, genetic polymorphisms in their parental wild species were evaluated using RNA-sequencing. We revealed distinct genetic diversity among these species and identified unique SNPs that discriminated between genomes over chromosomes. Causal QTLs of phenotypic diversity in wild relatives were also identified by the recently developed GRAS-Di systems. In the future, we would like to realize that synthetic polyploids become really beneficial materials of next-generation breeding based on identified genetic factors.

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Phenotypic diversity of synthetic polyploids reflected genome differentiation among their wild parental species.