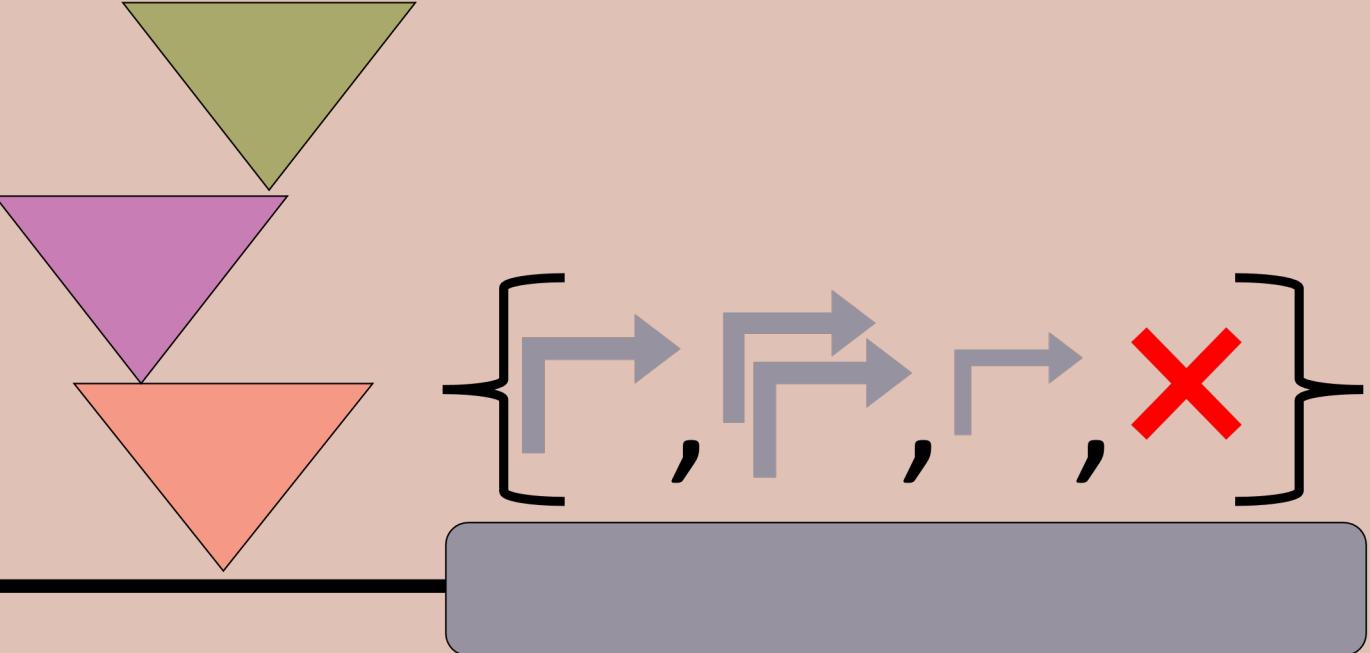


Limited contribution of transposable elements to regulatory adaptation in maize inbreds and hybrids



Merritt Khaipho-Burch¹; Michelle Stitzer²; Ana Berthel², Terry Casstevens²,
Zack Miller², Cinta Romay², Edward Buckler^{1,2,3}



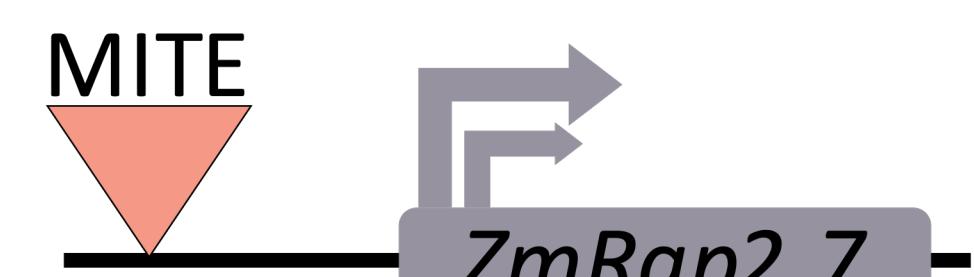
@MerKhaiBurch
mbb262@cornell.edu

1) Section of Plant Breeding and Genetics, Cornell University, Ithaca, NY; 2) Institute for Genomic Diversity, Cornell University, Ithaca, NY; 3) USDA-ARS, Ithaca, NY

Transposable element insertions can drastically alter plant phenotypes and gene expression under stress.

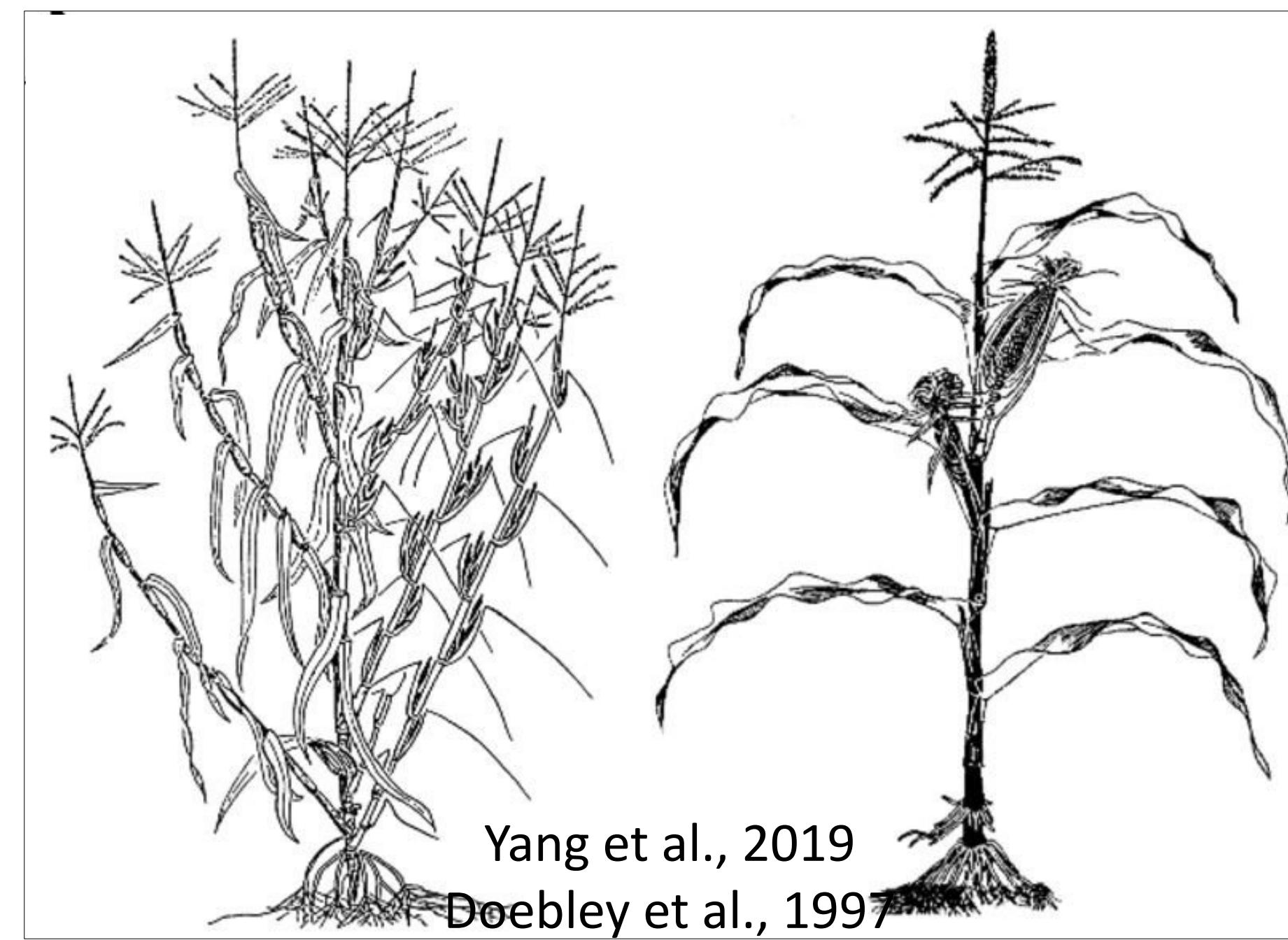
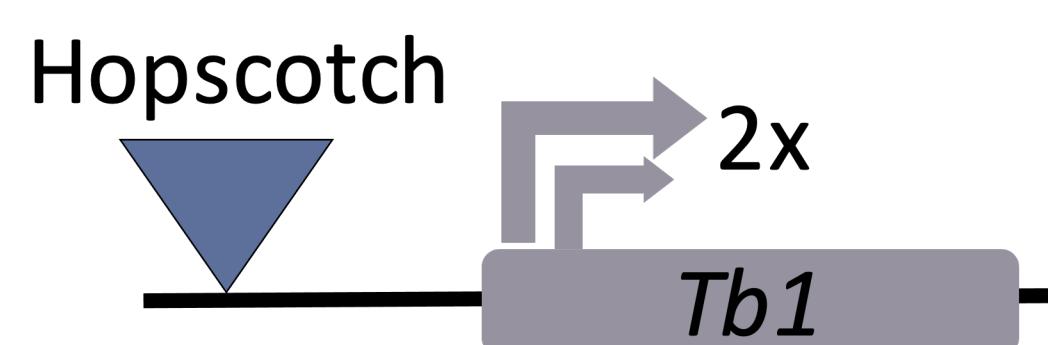
Vegetative to generative transition 1

Tourist family MITE insertion in *Vgt1* 70 Kb upstream of *ZmRap2.7* leads to a ~4.5-day difference in days to silking.



Teosinte branched 1

Hopscotch insertion 64 Kb upstream of *Tb1* represses growth of lateral branching.



Heat
etug & naiba
(RLX) upregulate
173 genes

Salt
ipiki & naiba
(RLX) upregulate
201 genes

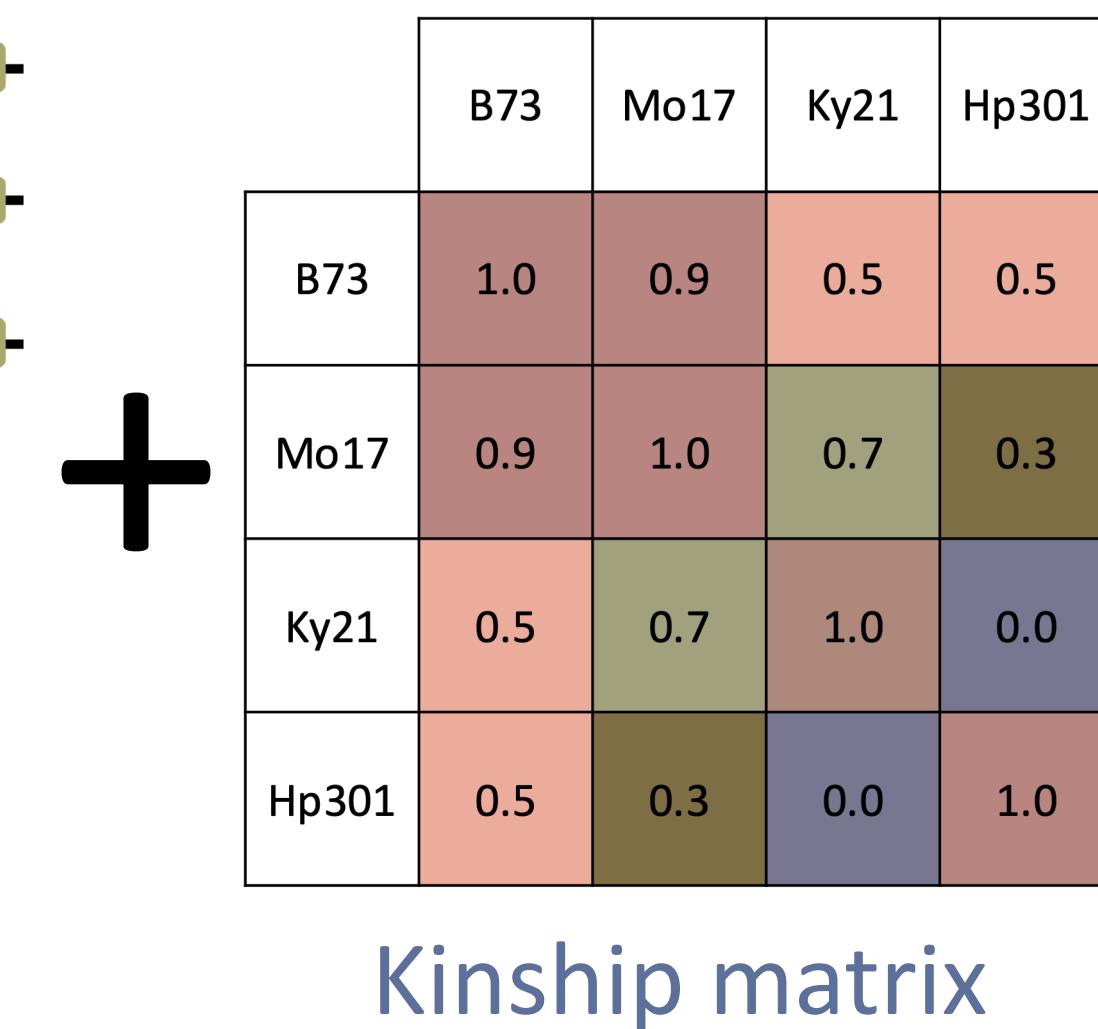
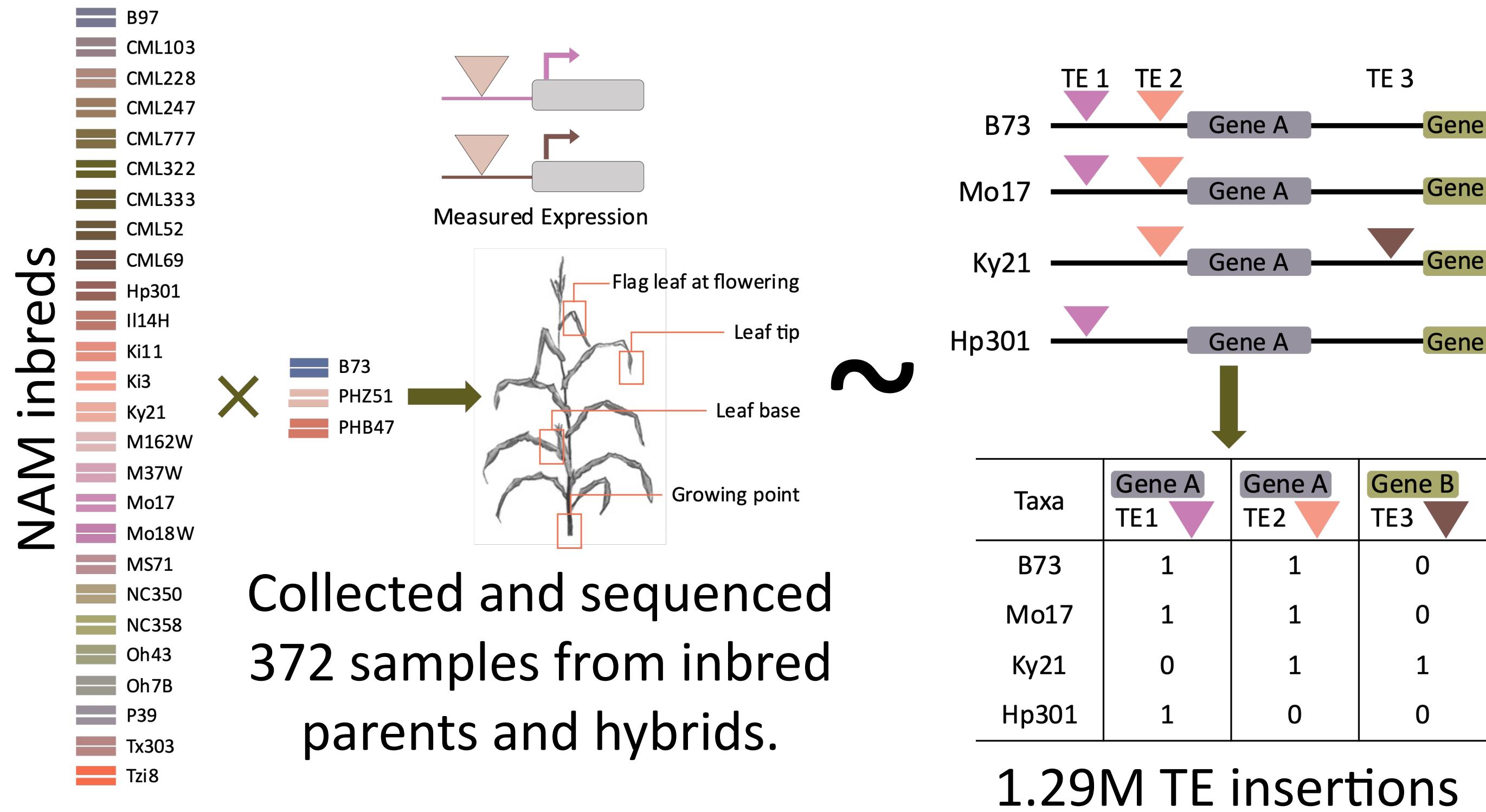
Cold
joemon & naiba
(RLX) upregulate
621 genes

UV
ipiki & joemon
(RLX) upregulate
252 genes

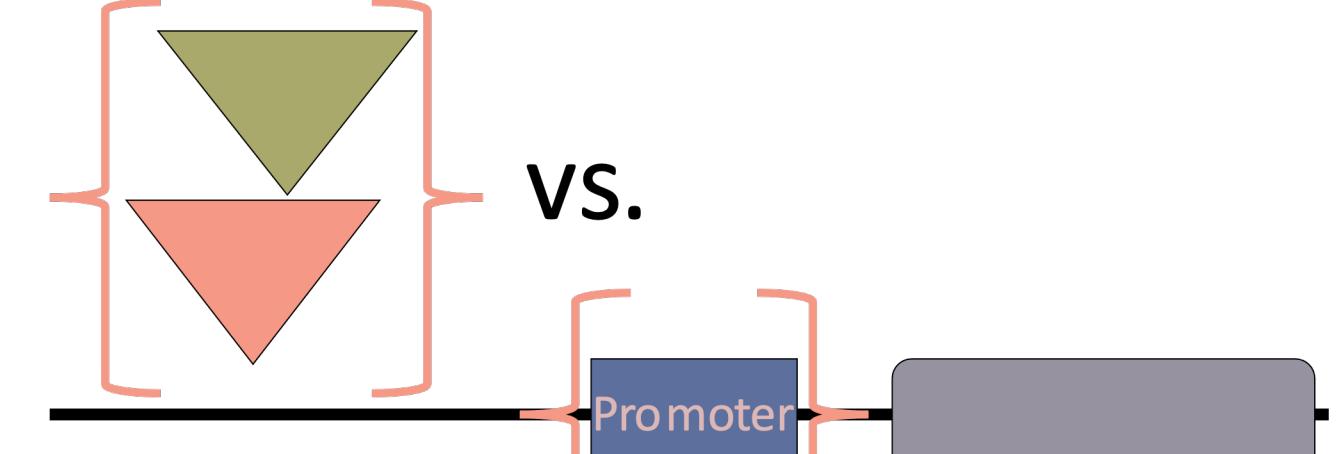
Makarevitch et al., 2015

Which TEs impact gene expression during normal plant development in maize inbreds and hybrids?

Model: Maize RNA Expression ~ TE Presence or Absence + Relatedness

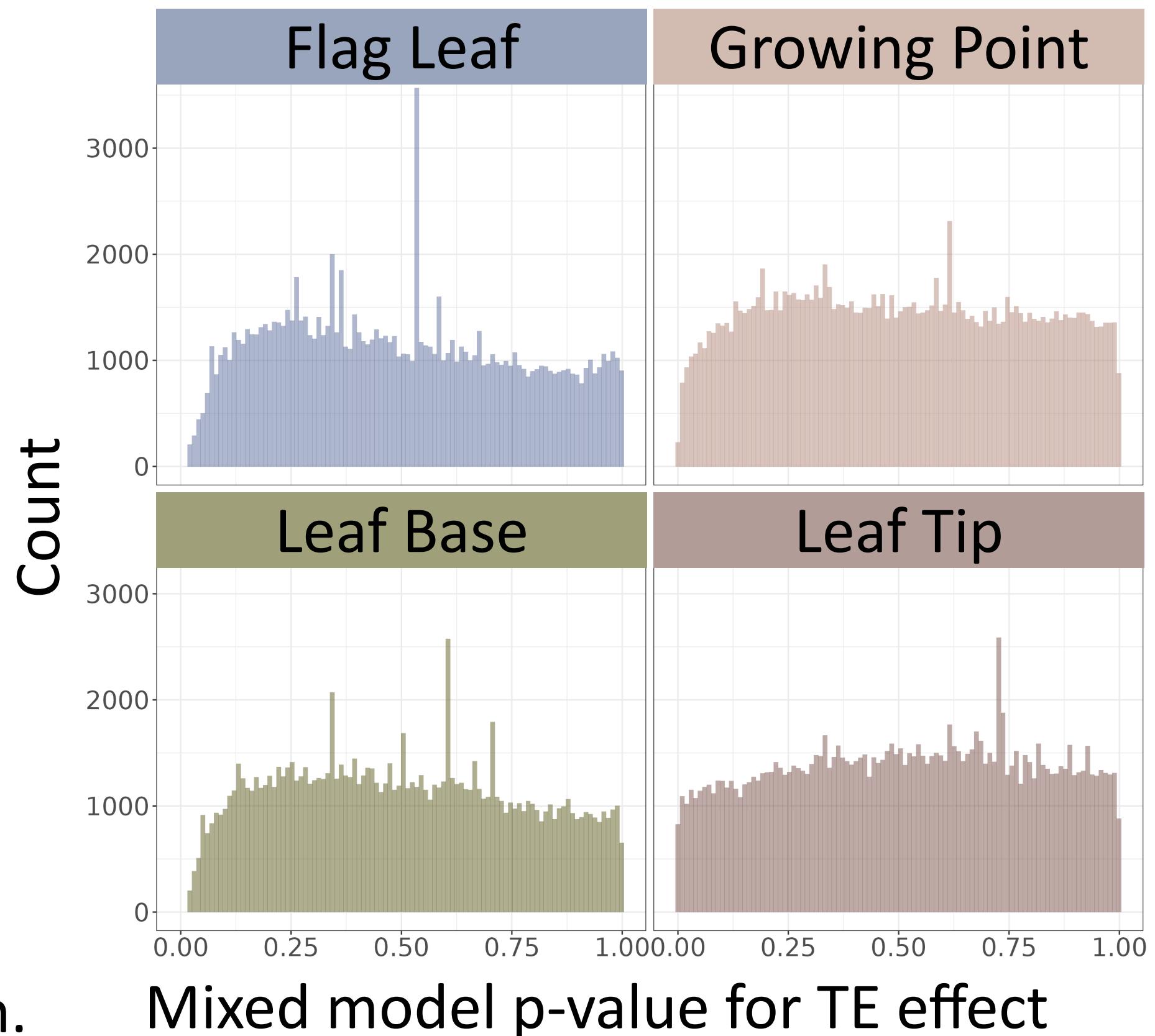


TE and promoter regulatory effects can be separated in a subset of genes, of which few TEs impact gene expression.



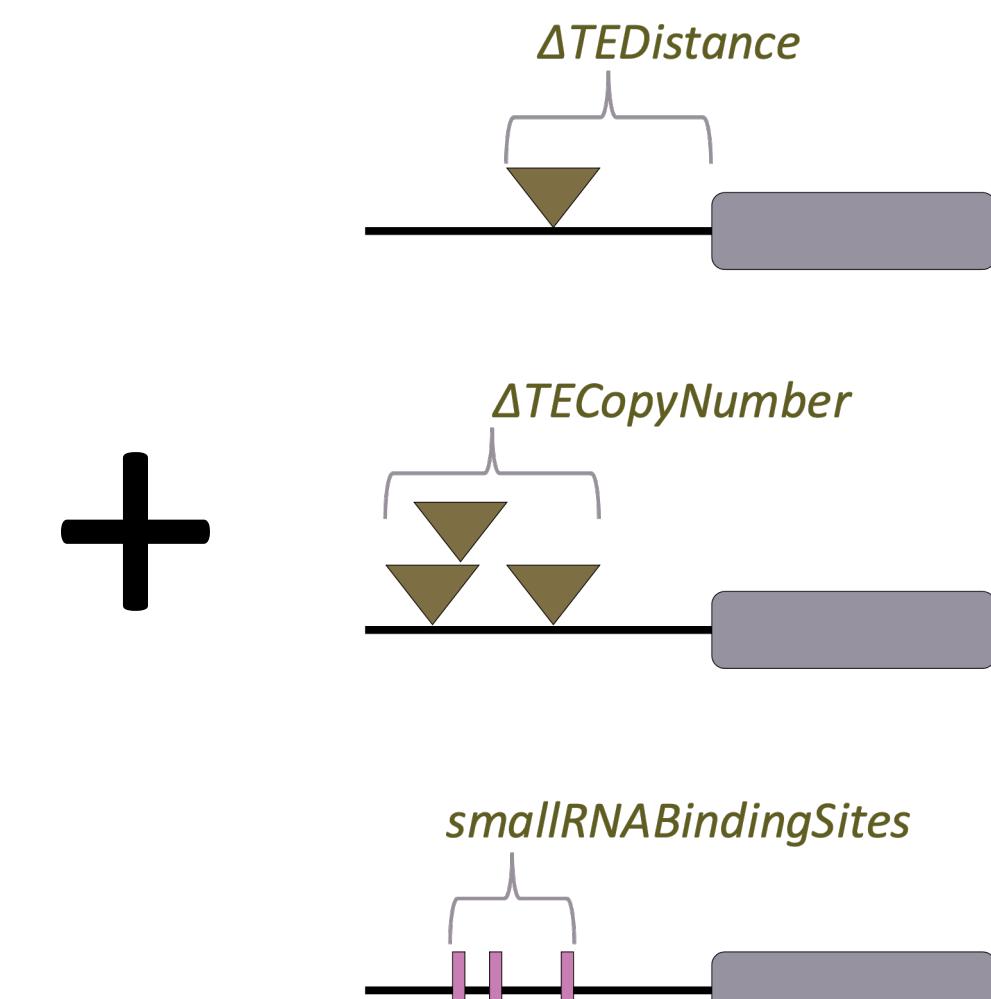
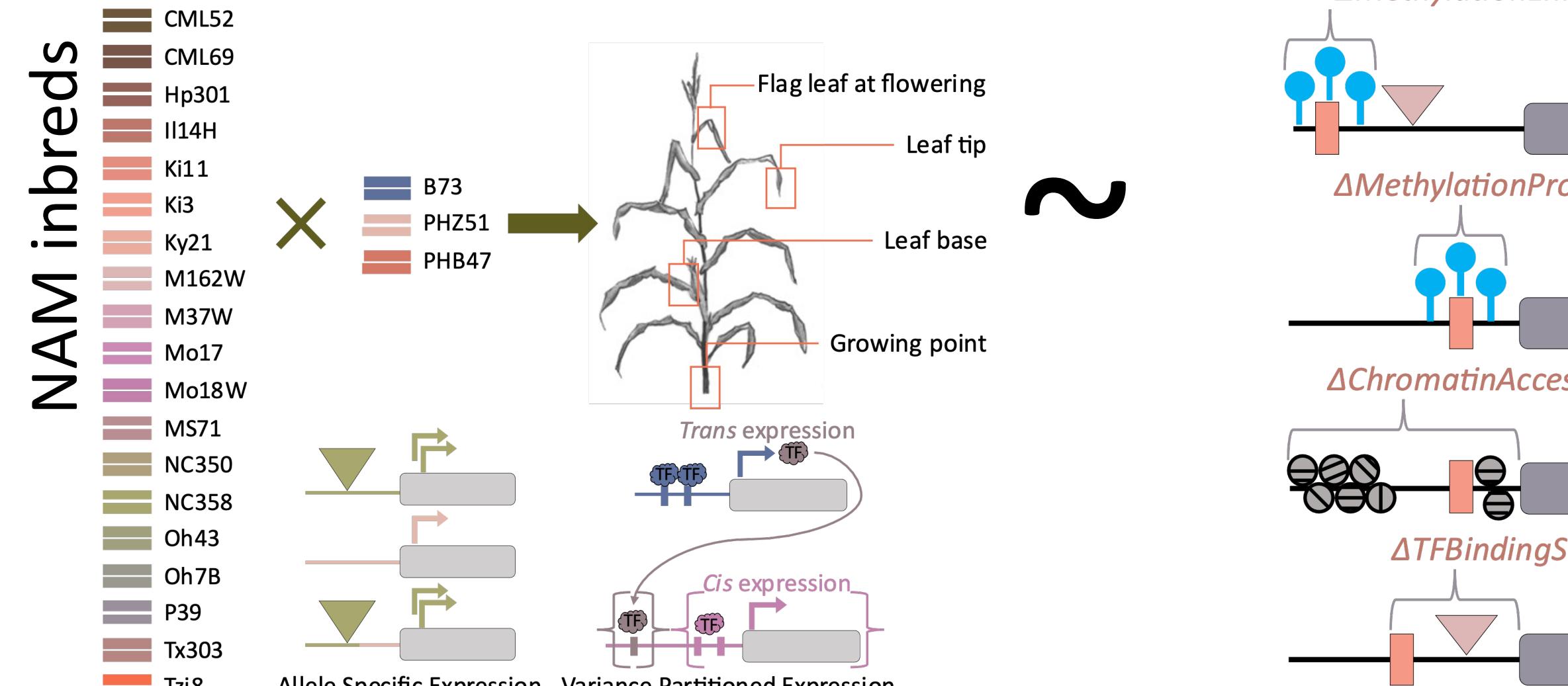
For the 34% of genes (12,668) whose TE effects are not confounded by LD, 5,418 genes and 11,811 associated TEs show some effect on measured expression.

Results for only NAM inbred founders shown.



New models are needed to understand how TEs, their features, and the surrounding genomic landscape impact gene expression.

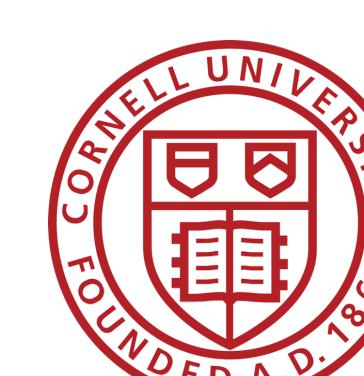
Model: Expression ~ Genomic Landscape + TE Features + e



Want to know more?
Take a zine about this poster!

This work was conducted on the traditional homelands of the Gayogohó:ñoq' (the Cayuga Nation). The Gayogohó:ñoq' are members of the Haudenosaunee Confederacy, an alliance of six sovereign Nations with a historic and contemporary presence on this land. The Confederacy precedes the establishment of Cornell University, New York state, and the USA.

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