

Table S1 Primers and gene ID used in this study

Name	ID_Zm00001d.1	ID_V3	Localization Maize V4	Forward primer (5'-3')	Reverse primer (5'-3')
ZmPIN1a	Zm00001d044812	GRMZM2G098643	Chr9: 3291763-3295059	CGGATAATCGCGTGCGGGAACA	CCGAAGATGACTGCCGTGCTGA
ZmPIN1b	Zm00001d018024	GRMZM2G074267	Chr5: 212254262-212257744	GCCATGTTCACTCTCGGGCTGTT	CGGTGCTGAGAATGTCAGGGTGC
ZmPIN1c	Zm00001d052269	GRMZM2G149184	Chr4: 185371637-185375098	TCATCGCGTGCGGGAACAAG	ACGGCTGTGCTCAGGATGTCG
ZmPIN1d	Zm00001d052442	GRMZM2G171702	Chr4: 190119181-190122383	GTCCCTGGTCTCCTACAGGT	ATGAACGCCGTACTCCTTGG
ZmPIN3a	Zm00001d044083	GRMZM2G126260	Chr3: 218523216-218528077	GTGCGGTTCCGGTGGCACAT	GGCACGATCCCTTGCGGTAGAG
ZmPIN3b	Zm00001d045219	GRMZM2G160496	Chr9: 16477975-16480410	TCATCTCGTTCGATTCCACTTCG	TGGTGCGGTGCAGGCTGTACTCT
ZmPIN5a	Zm00001d042345	GRMZM2G025742	Chr3: 162347553-162351683	CCAACAGGCTGCACATCGAG	ACATCAGCGTGCAACCCATA
ZmPIN5b	Zm00001d043660	GRMZM5G839411	Chr3: 206187330-206189862	TGAAGCTATAGAATCAGGTACTCCA	ACGATTTTCGTTTGCAAGGC
ZmPIN5c	Zm00001d031594	GRMZM2G148648	Chr1: 195810416-195812223	CAACGTGGTGTGAGGAATGG	GGTAGTTCATGGCGTAGGGG
ZmPIN8	Zm00001d006082	GRMZM2G040911	Chr2: 197602488-197606112	TCGCCACGCTCAACAACACGC	GGTTCCTCGCCACCTTCTTCCA
ZmPIN9	Zm00001d043179	GRMZM5G859099	Chr3: 190701685-190704770	TCGCCATGTACGGCAAGTGGG	CGTCGTCATCAGCGGCTTCCTC
ZmAct1	Zm00001d010159	GRMZM2G126010	Chr8: 102413407-102417640	ATCACCATTGGGTCAGAAAGG	GTGCTGAGAGAAGCCAAAATAGAG