Genome-wide association study of maize resistance to *Pythium* aristosporum stalk rot

Mengwei Hou^{1,†}, Yanyong Cao^{1,†*}, Xingrui Zhang^{2,†}, Shulin Zhang³, Tengjiao Jia¹, Jiwei Yang¹, Shengbo Han¹, Lifeng Wang¹, Jingjing Li¹, Hao Wang¹, Lili Zhang¹, Xiaolin Wu⁴, Canxing Duan^{2,*}, Huiyong Li^{1,*}

¹Institute of Cereal Crops, Henan Academy of Agricultural Sciences, Zhengzhou 450002, China.

- ²Institute of Crop Sciences, Chinese Academy of Agricultural Sciences, Beijing 100081, China.
- ³ College of Biology and Food Engineering, Anyang Institute of Technology, Anyang 455099, China
- ⁴ College of Life Science, Henan Agricultural University, Zhengzhou 450002, China
- [†]These authors contributed equally to this work and share first authorship.
- *Correspondence: Yanyong Cao (yanyongcao@126.com), Canxing Duan (duancanxing@caas.cn), Huiyong Li (lihuiyong1977@126.com)

A







FIGURE S1 | Deep learning predicted BMVCP5 (+) strand RNA3 second structure without and with *Zm00001d051313* gene-specific fragment inserts. Full length (+) stands of BMV RNA3, without (A) or with gene fragment inserts representing *Zm00001d051313* (B) were folded with the MXFold2 Web server (http://www.dna.bio.keio.ac.jp/mxfold2/). Locations of the two cloning sites are indicated. Gene-specific fragment inserts were shown with magenta dashed lines.



FIGURE S2 | Principal component (PC) analysis based on SNP genotypic data. Blue triangles and red circles indicate inbred lines that collected from China, and United States, respectively.

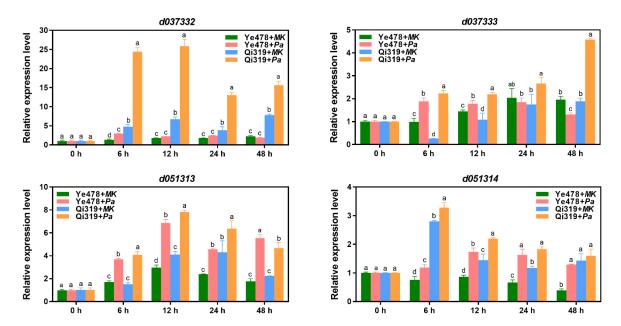


FIGURE S3 | Expression of the four candidate genes was quantified by qRT-PCR in two control inbred lines post *Pythium aristosporum* infection. Different letters on the columns show a significant difference (P < 0.05) as determined by the Tukey-Kramer test.

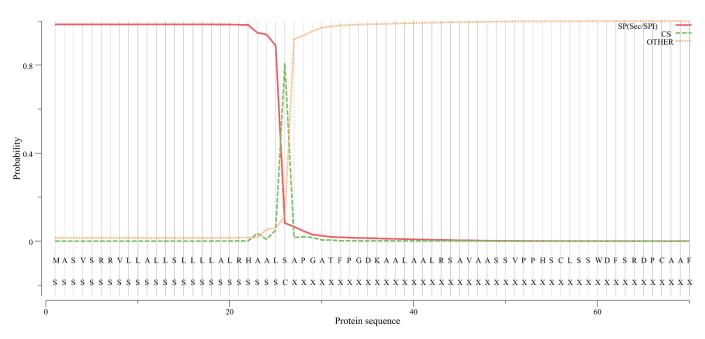


FIGURE S4 | Signal peptide prediction of proteins using SignalP-5.0 analysis. The first 70 residues from N-terminus of the each preprotein were selected for signal peptide prediction. Non-signal peptide (Other, yellow line) and Signal Peptide (SP, red line) moieties are reported as 0 (0%) to 1 (100%) probability. The cut site of SP (CS) is indicated as dashed green line.