

### **Description of Additional Supplementary Files**

File Name: Supplementary Data 1

Description: Description and results of all statistical tests and source data

File Name: Supplementary Data 2

Description: Summary of sequencing and assembly statistics

File Name: Supplementary Data 3

Description: All in planta phenotypic data

File Name: Supplementary Data 4

Description: Validation of randomly chosen mutations using Sanger sequencing

File Name: Supplementary Data 5

Description: List of all novel mutations in replicates compared to progenitor

File Name: Supplementary Data 6

Description: Results of simulation for the detection of structural variations using an assembly-based approach

File Name: Supplementary Data 7

Description: Gene annotation of reference isolate IPO323

File Name: Supplementary Data 8

Description: TE annotation of reference isolate IPO323

File Name: Supplementary Data 9

Description: H3K4me2 enriched regions of reference isolate IPO323 $\Delta$ chr18

File Name: Supplementary Data 10

Description: H3K9me3 enriched regions of reference isolate IPO323 $\Delta$ chr18

File Name: Supplementary Data 11

Description: H3K27me2 enriched regions of reference isolate IPO323 $\Delta$ chr18