

Description of Additional Supplementary Files:

Supplementary Data 1: Accessions of the 1,509 single-copy orthologous protein sequences used for phylogenetic analysis (Fig. 2b).

Supplementary Data 2: List of *A. thaliana* genes whose expression was significantly influenced between sample_1 and sample_2 (q (FDR) < 0.05) at 10 days post-inoculation (dpi). P = normal Pi. pp = low Pi. Treatment: Mock, Ct61, Ct4, Ct3, or KHC.

Supplementary Data 3: Gene ontology analyses for 758 *A. thaliana* genes specifically and significantly upregulated during root colonization by pathogenic Ct3 compared with beneficial Ct61 and Ct4 at 10 dpi ($\log_2FC > 1$, q (FDR) < 0.05). Genes were separated into three different clusters by k-means.

Supplementary Data 4: List of Ct3 genes significantly influenced during *A. thaliana* root colonization between 10 dpi and 24 dpi (q (FDR) < 0.05). P = normal Pi. mp = low Pi. e = 10 dpi. L = 24 dpi.

Supplementary Data 5: List of Ct3 92 genes whose genes was co-regulated with Ct3 ABA or BOT genes. This is related to Supplementary Table 6.

Supplementary Data 6: ABA (1-4) or BOT (1-7) homologous genes used as the query of BLASTP search against GenBank NR database.

Supplementary Data 7: Amino acid sequences used in Fig. 4, 8, Supplementary Figs. 4, 8.

Supplementary Data 8: List of Ct3 genes whose expression was significantly influenced between sample_1 and sample_2 (q (FDR) < 0.05) at 10 days post-inoculation (dpi) under low Pi. Treatment: Ct3, Ct3 Δ aba2, Ct3 Δ aba3, Ct3 Δ bot5.

Supplementary Data 9: List of Ct3 92 genes described in Supplementary Table 7. The expression profiles of each Ct3 gene during root colonization with Ct3WT, Ct3 Δ aba2, Ct3 Δ aba3, or Ct3 Δ bot5 were described.

Supplementary Data 10: List of *A. thaliana* genes whose expression was significantly influenced between sample_1 and sample_2 (q (FDR) < 0.05) at 10 days post-inoculation (dpi) under low Pi. Treatment: Mock, Ct3, Ct3 Δ aba2, Ct3 Δ aba3, Ct3 Δ bot5, or Ct4.

Supplementary Data 11: A total of 288 *A. thaliana* genes were significantly induced during root colonization with Ct3WT compared with Ct3 Δ aba2, Ct3 Δ aba3, Ct3 Δ bot5, and Ct4 ($\log_2$ FC >1, q (FDR) < 0.05).

Supplementary Data 12: 375 *A. thaliana* genes were significantly suppressed after inoculation with Ct3WT compared to those with Ct3 Δ aba2, Ct3 Δ aba3, Ct3 Δ bot5, and Ct4 ($\log_2$ FC < 0.05).

Supplementary Movie 1: z-stack of Ct3 expressing cytoplasmic GFP (green) and root cells of *A. thaliana* expressing PIP2A-mCherry (magenta) shown in Fig. 1e. White arrowheads indicate the Ct3 hypha penetrating a root epidermal cell surrounded by PIP2A-mCherry-labeled host membranes.

Supplementary Movie 2: z-stack of Ct4 expressing cytoplasmic GFP (green) and root cells of *A. thaliana* expressing PIP2A-mCherry (magenta) shown in Fig. 1f. White arrowheads indicate the Ct4 hypha penetrating a root epidermal cell surrounded by PIP2A-mCherry-labeled host membranes.