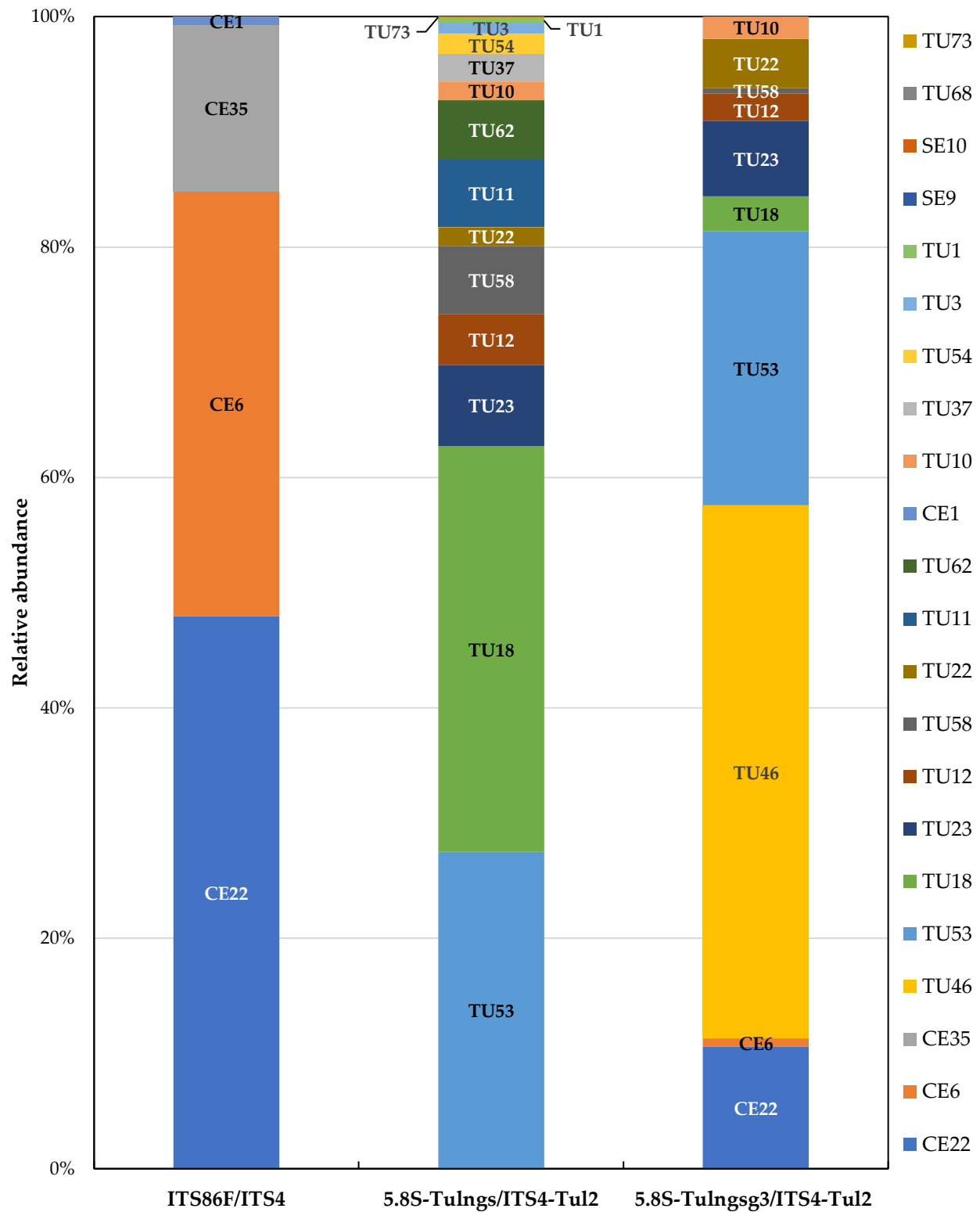


Supplementary Figure S1. The six developmental stages of seed germination and protocorm development in *P. japonica* seeds **(a)** Stage 0: no germination; **(b)** Stage 1: an enlarged embryo; **(c)** Stage 2: an enlarged embryo with ruptured seed coat; **(d)** Stage 3: a globular embryo (protocorm) with rhizoids; **(e)** Stage 4: a protocorm with an apical meristem (arrow); **(f)** Stage 5: emergence of the first leaf (seedling formation); and **(g)** Stage 6: a seedling with a first root and further development.



Supplementary Figure S2. Relative abundances of OMF OTUs obtained from *P. japonica* using fungal universal (ITS86F/ITS4) and Tulasnellaceae-specific (5.8S-Tulngs/ITS4-Tul2 and 5.8S-Tulngsg3/ITS4-Tul2) primer pairs. OTUs with fewer than 100 total reads were excluded. TU: Tulasnellaceae, CE: Ceratobasidiaceae, SE: Serendipitaceae. Sequences were assigned to OTUs at 97% sequence similarity. In total, 826,325 reads were obtained for OMF fungi.

Supplementary Table S1. Effects of fungal isolates on *P. japonica* seed germination and protocorm development after 4 months of culturing. Germination percentage (mean \pm SE, n=6) within columns marked by different letters are significantly different at $p < 0.05$ (Tukey test).

Treatment	Ratio of seed germination and protocorm development (%)						
	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
CE6-1	0.60 \pm 0.60a	0.00 \pm 0.00a	10.52 \pm 5.79a	25.14 \pm 6.47bc	21.48 \pm 7.77c	13.60 \pm 5.47b	28.67 \pm 7.43b
CE6-2	0.00 \pm 0.00a	0.00 \pm 0.00a	2.58 \pm 1.42a	11.44 \pm 2.84ab	14.45 \pm 1.52bc	17.75 \pm 4.17b	53.79 \pm 7.04c
CE12	0.72 \pm 0.72a	6.24 \pm 1.03abc	55.54 \pm 6.96b	29.91 \pm 5.22c	6.88 \pm 2.78ab	0.69 \pm 0.69a	0.00 \pm 0.00a
CE22	0.00 \pm 0.00a	4.93 \pm 1.62ab	68.92 \pm 1.71b	19.57 \pm 2.02bc	6.58 \pm 1.19ab	0.00 \pm 0.00a	0.00 \pm 0.00a
TU18	2.23 \pm 1.42a	12.97 \pm 3.46c	69.92 \pm 4.63b	14.88 \pm 5.50abc	0.00 \pm 0.00a	0.00 \pm 0.00a	0.00 \pm 0.00a
TU27	2.45 \pm 1.20a	7.83 \pm 0.87bc	89.72 \pm 1.60c	0.00 \pm 0.00a	0.00 \pm 0.00a	0.00 \pm 0.00a	0.00 \pm 0.00a
Control	3.60 \pm 1.30a	7.03 \pm 1.87abc	89.37 \pm 1.68c	0.00 \pm 0.00a	0.00 \pm 0.00a	0.00 \pm 0.00a	0.00 \pm 0.00a

Control: seeds without fungal inoculation