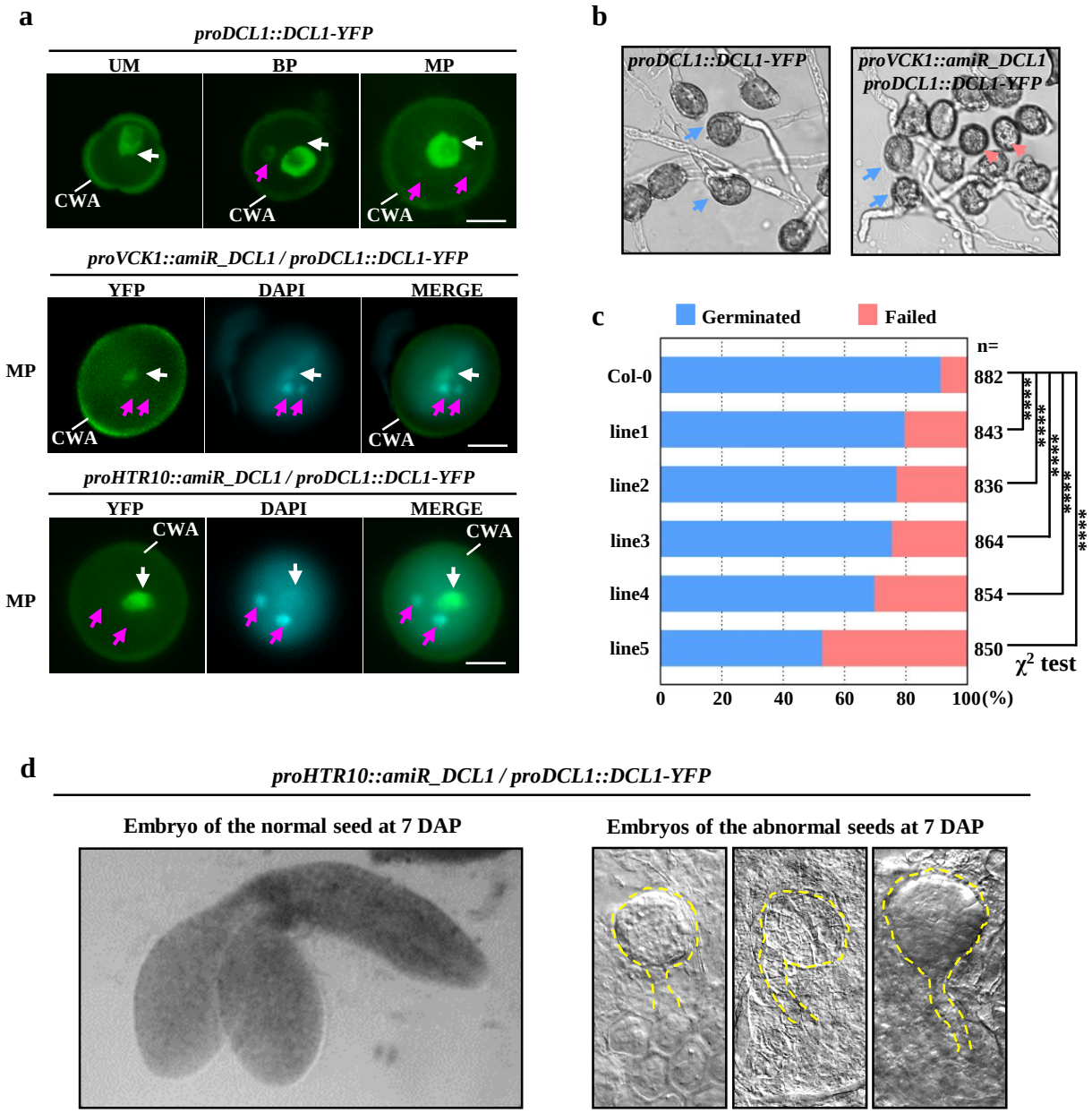

Fig. S4. Pollen germination and embryo development in conditionally knockdown plants of *dcl1* in pollen.

(a) Validation of conditional knockdown of *DCL1* in plants. The top panel indicates DCL1-YFP signal in Col-0 plants. The middle and the bottom panels indicate DCL1-YFP signal when *proVCK1::amiR_DCL1* and *proHTR10::amiR_DCL1* were introduced, respectively. More than eight independent transgenic lines were obtained. White and magenta arrowheads indicate VN and GN/SN, respectively. VN, vegetative nucleus; GN, generative nucleus; SN, sperm cell nuclei; CWA, cell wall autofluorescence. Scale bar = 10 μm.

(b) Representative images showing pollen germination in *proDCL1:: DCL1-YFP* and *proVCK1::amiR_DCL1 / proDCL1:: DCL1-YFP* transgenic plants. Images were taken after in vitro pollen germination for 6h. Blue arrowhead indicates germinated pollen; pink arrowhead indicates germination-failed pollen.

(c) Statistical analysis of (a). n indicates total pollen number. *p*-values were calculated by Chi-square test (**** $p < 0.0001$).

(d) Embryos of the normal or abnormal seeds from the same silique of *proHTR10::amiR_DCL1 / proDCL1:: DCL1-YFP* in 7 DAP (DAP, days after pollination) by DIC imaging. The yellow dash line represents the globular embryos of the abnormal seeds.