



Supplemental Figure 3. Histological analysis of wild-type and *mell-1* gametogenesis in anthers by optical sectioning. Scale bars indicate 50 μm .

(A, B) In 0.8-mm anthers, wild-type pollen mother cells (pmc) were spherical and identical in shape and size (A), while the *mell-1* PMCs were irregular in size and shape (B).

(C, D) After the wild-type anther passed through meiosis in 1.0-mm anthers (C), almost mutant PMCs were still arrested at meiosis and failed to produce tetrad spores (D).

(E, F) Wild-type 1.2-mm-long anthers underwent microsporogenesis (E), while almost mutant PMCs were still arrested at meiosis I (F).

(G, H) The wild-type anthers generated fertile pollen with normal starch accumulation (G), whereas the mutant anthers retained no mature pollen (H).

(I-L) Female gametogenesis was affected in the *mell-1* mutant. In the wild-type ovule, a single embryo sac was clearly observed (I). In contrast, in the *mell-1* mutant ovule, the megaspore mother cell was arrested at meiosis (arrow in (J)) or as tetrad spores (arrowheads in (K)). In some mutant ovules, the embryo sac was completely eliminated (L).