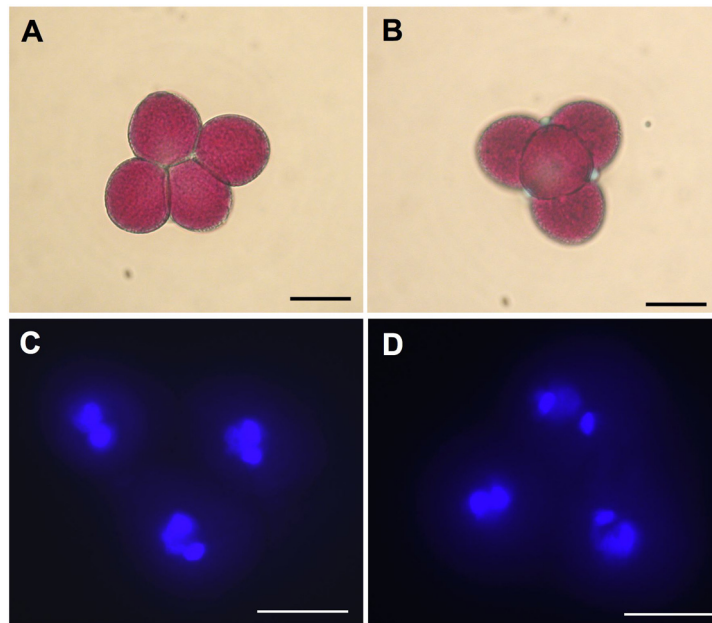
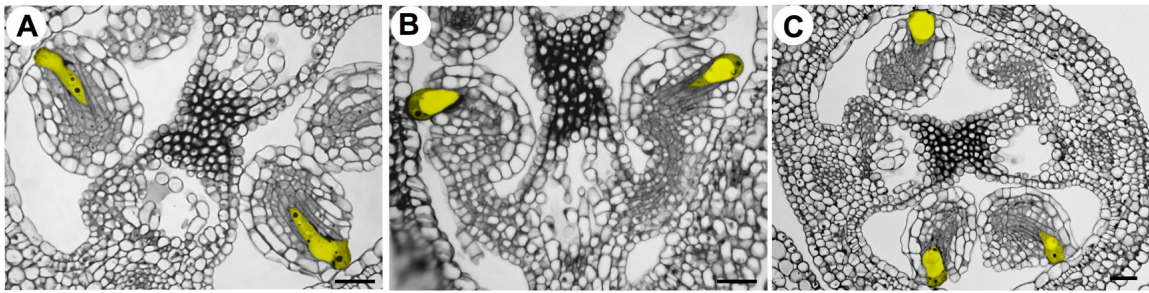


Supplemental Data. Wang et al. (2008). Haplo-insufficiency of *MPK3* in *MPK6* mutant background uncovers a novel function of these two MAPKs in Arabidopsis ovule development



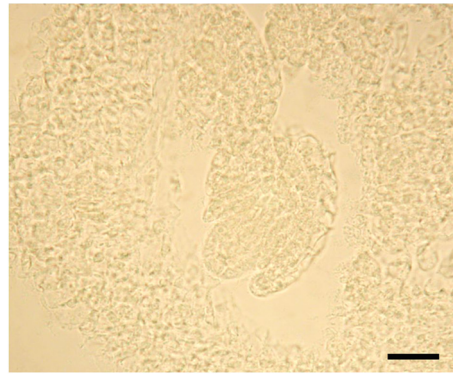
**Supplemental Figure 1. Pollen grains produced from the *mpk3*<sup>+/-</sup> *mpk6*<sup>-/-</sup> mutant plants are viable and have normal development.**

*mpk3*<sup>+/-</sup> *mpk6*<sup>-/-</sup> mutant was introduced into *qrt1-1* mutant background. In *qrt1-1*, mature pollens from a single meiosis were attached together. (A and B) Pollen vital stain by Alexander solution in *qrt1-1* (wild type) (A) and *mpk3*<sup>+/-</sup> *mpk6*<sup>-/-</sup> *qrt1-1* (B). (C and D) Pollen nuclei stain with DAPI in *qrt1-1* (wild type) (C) and *mpk3*<sup>+/-</sup> *mpk6*<sup>-/-</sup> *qrt1-1*. In each mature pollen, vegetative nucleus is stained with diffusible blue, two generative nuclei were stained with bright blue. Scale bars=20  $\mu$ m.



**Supplemental Figure 2. More examples of semi-thin sections of developing ovules in the *mpk3*<sup>+/-</sup> *mpk6*<sup>-/-</sup> mutant as shown in Figure 6.**

Semi-thin sections of the developing *mpk3*<sup>+/-</sup> *mpk6*<sup>-/-</sup> mutant ovules (Stage 3-IV) were shown at a lower magnification. Restricted embryo sacs, which occurred at high frequency, were highlighted by yellow color. Scale bar=20  $\mu$ m.



**Supplemental Figure 3. Sense-probe control for in situ RNA hybridization of *MPK3*.** Stage 2-V ovule is shown. The section is probed with *MPK3* sense probe. Scale bars=20  $\mu\text{m}$ .