

## Legends for supplemental material

**Figure S1: Mitochondrial architecture in different cell types of the shoot apical region, as seen in thin section electron micrographs.** **A:** Overview of the shoot apical region, The areas boxed with red dotted lines delineate the different regions where differences in mitochondrial architecture were observed, and correspond to the cells shown in B-E. **B:** Differentiated cotyledon cell. A large vacuole and thick cell walls are indicative of its differentiated status. In this cell type, only round or slightly oval mitochondrial cross-sections (**m**) are observed. **C:** Cell from the apical part of the LP. This cell is in the process of differentiating into a leaf cell, as evidenced by the emergence of a large vacuole. Only round, oval or short worm-like mitochondria are observed. **D and E:** A large, branched mitochondrion is seen to be partially wrapped around the central nucleus in both SAM (**D**) and LP (**E**) meristematic cells. The mitochondrial region associated with the nuclear membranes possesses a sheet-like configuration. The arrow pairs point to different sheet-like mitochondrial domains around the nuclei. Despite their proximity, the nucleus and the mitochondrion never make direct contact, as evidenced by the presence of ribosomes between the two membrane systems. The micrographs shown in D and E are three consecutive, 100 nm thick, serial sections. **cw:** cell wall; **pl:** plastid; **m:** mitochondria; **n:** nucleus; **v:** vacuole. **Bars** in A: 10  $\mu\text{m}$ . B-E: 2  $\mu\text{m}$ .

**Figure S2: Mitochondria of interphasic root cells.** **A:** Overview of a root region where an interphasic (red arrows) cell has been outlined in yellow. **B – C:** Consecutive, 0.5  $\mu\text{m}$  thick, confocal sections of the marked cell were recorded and mounted into a stack for partial cell reconstruction and modeling. **H:** 3D model of the cell marked by red arrows in **A - G**. The plasma membrane (**pm**) is modeled in dark yellow, nucleus (**n**) in purple and mitochondria (**m**) in green. **Bars** in A-G: 10  $\mu\text{m}$ ; H: 1  $\mu\text{m}$ .