SUPPORTING INFORMATION

Study the Inhibitory Effect of Water Soluble Fullerenes on Plant Growth at the Cellular Level

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Supporting Figures

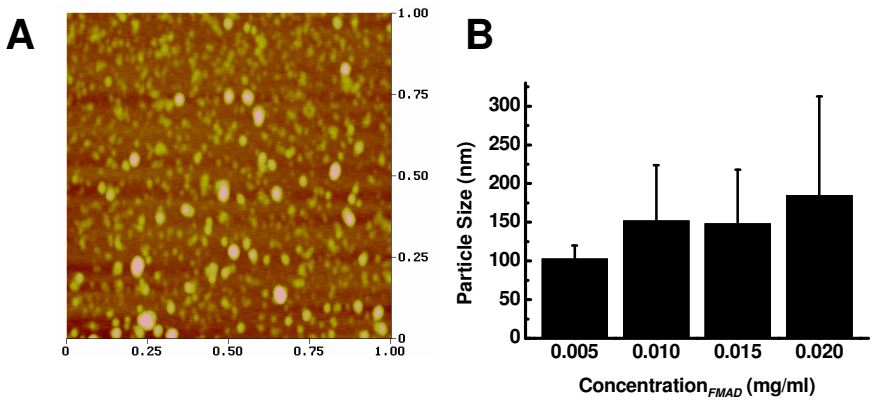

Figure S1 (A) Atomic force microscopy image of FMAD (0.1 mg/ml) aggregates (image size 1 μm x 1 μm) and (B) Dynamic light scattering measurements showed that the averaged size of FMAD particles under different FMAD concentrations varied from 100 to 200 nm.

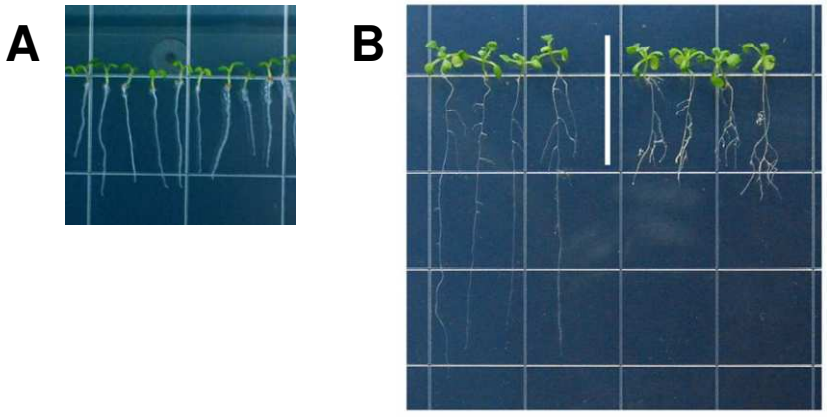

Figure S2 Seedlings were grown in the nomal medium for 5 days (A) and then transfered into the medium containing 0.01 mg/ml FMAD (B, right of the white bar) or kept in the normal medium (B, left of the white bar) for another 7 days growing (B) before imaging.

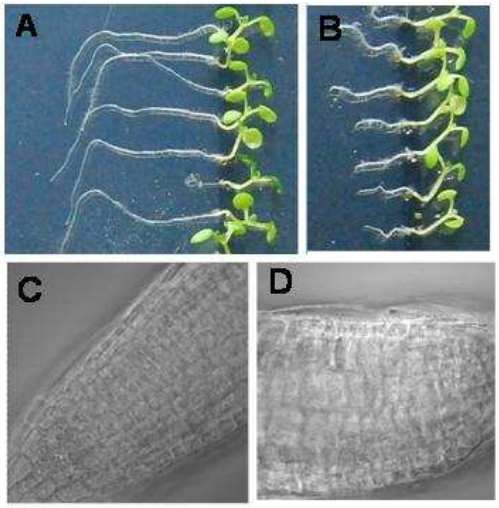

Figure S3 Seedlings grown in the normal medium (A) and the medium containing 0.01 mg/ml FMAD (B) were first allowed to grow for 5 days, and then the plates were turned through 90° and the seedlings were grew for another 3 days. Normal root tip without any treatment (C) was symmetric in shape, while the distorted and swelled root tips were found in the seedlings after 5-day growth in the medium containing 0.01 mg/ml FMAD (D).

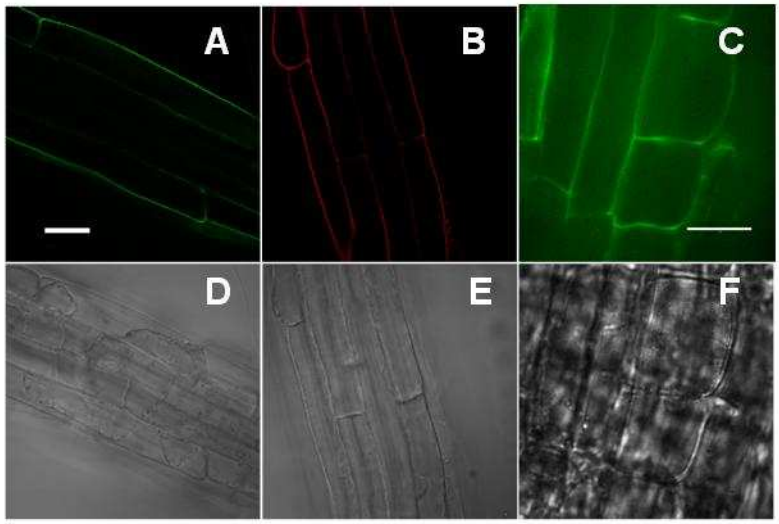

Figure S4 The root cells of the normal seedlings were incubated with fluorescein cadaverine labeled FMAD and then treated by plasmolysis. The results indicated that FMADs mainly adhere on the cell wall (A, D). For the seedlings grown in the medium containing FMADs, when they were stained with

Propidium Iodide, no fluorescence in nuclear was observed in the root cells. This indicates that the cell membrane was intact after the seedlings were repressed by FMADs (B, E). While fluorescein cadaverine labeled FMAD was internalized into the repressed root cells, fluorescein cadaverine itself could not enter into the cells (C, F). A-C were fluorescence images and D-F were corresponding optical images. Scale bar is 20 µm.

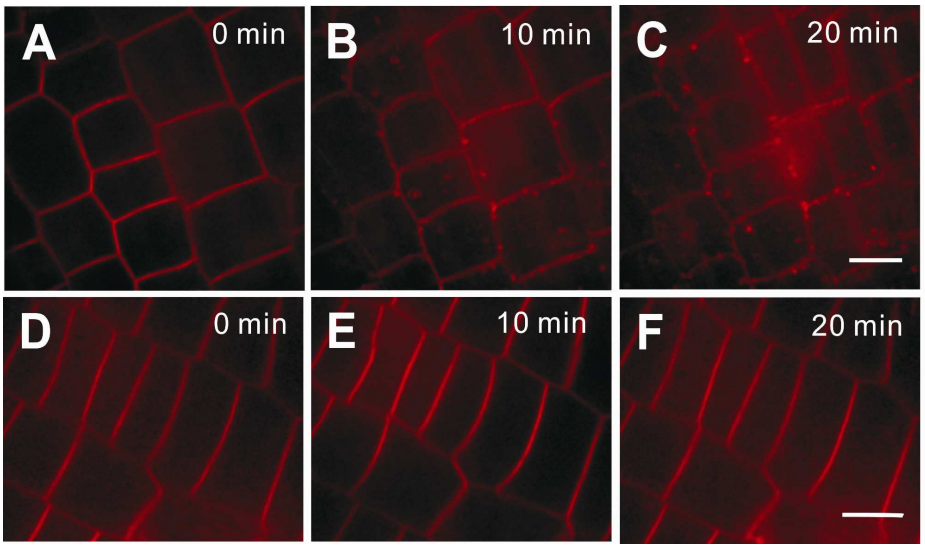

Figure S5 Confocal microcopy images of FM4-64-uptake in the normal (A-C) and FMAD-repressed root cells (D-F). A to C: Images of the root cells in the meristematic zone at different time after incubating the root with FM4-64 (2 mM) for 2 minutes. The increased uptake of the dye (appeared as bright spots) was observed, showing normal uptake and endocytosis in the typical root cells. D to F: Under the same condition, the internalization of FM4-64 dye through endocytosis was inhibited when the seedlings were pretreated by FMAD (0.01 mg/ml) for 5 days. This indicates that FMAD inhibited root cell endocytosis in *Arabidopsis*. Scale bar is 10 µm.