

Supplementary Information

Table S1. The dosages of irrigation per plant over the growth period. The total volume was 960 mL.

Days after planting (DAP)	Volume (mL)	Event(s)
0	0	Sowing seeds
4	0	Transferred from 4 °C to 20 °C
14	3	Dome 1/4 opened
18	3	Dome 1/2 opened
21	3	Dome completely open
25	3	
28	3	
32	3	
35	9	
39	9	
42	9	
46	45	
49	45	
53	45	
56	45	
61	45	
63	45	
67	45	
70	60	
74	60	
77	60	
81	90	
84	90	
88	120	
91	120	
95	0	Tissue harvest & soil collection

Figure S1. Illustration of E0–E3 generations.

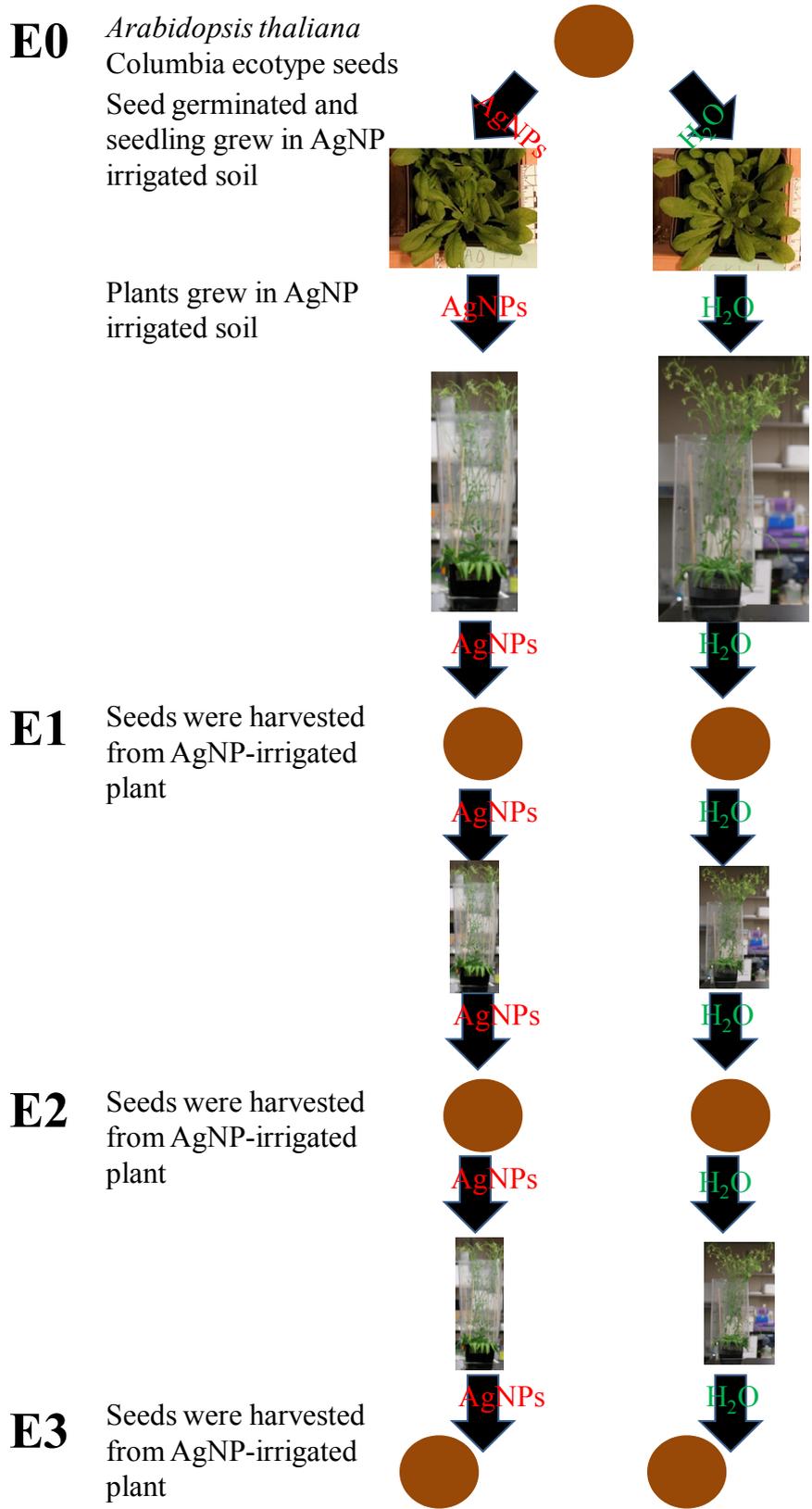


Figure S2. Reproductive traits of control, AgNP-treated and AgNO₃-treated plants. (A) Inflorescence height from 50 to 61 DAP; (B) Flower numbers from 52 to 64 DAP; (C) Siliques numbers from 57 to 64 DAP; (D) Seed weight (in mg) per 100 seeds for control, two concentrations of AgNPs 75 µg/L (as 75 AgNPs) and 300 µg/L (as 300 AgNPs) and two concentrations of AgNO₃ 4.25 µg/L (as 4.25 AgNO₃) and 17 µg/L (as 17 AgNO₃).

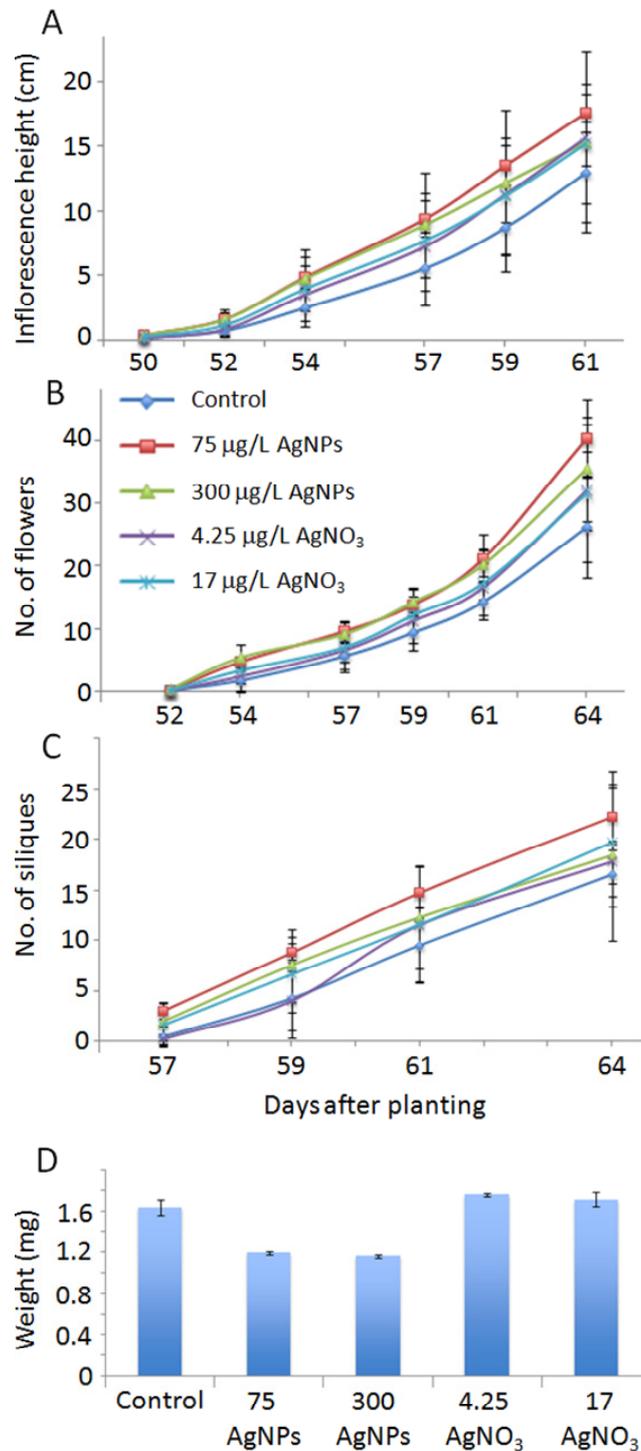


Figure S3. Accumulation of AgNPs in the Arabidopsis root tip at 14 DAP. (A) control plant; (B) AgNPs treated plant. Each figure (A,B) contains four panels: top left, AgNPs (in red); top right, GFP (in green); bottom left, brightfield; bottom right, composite of the three.

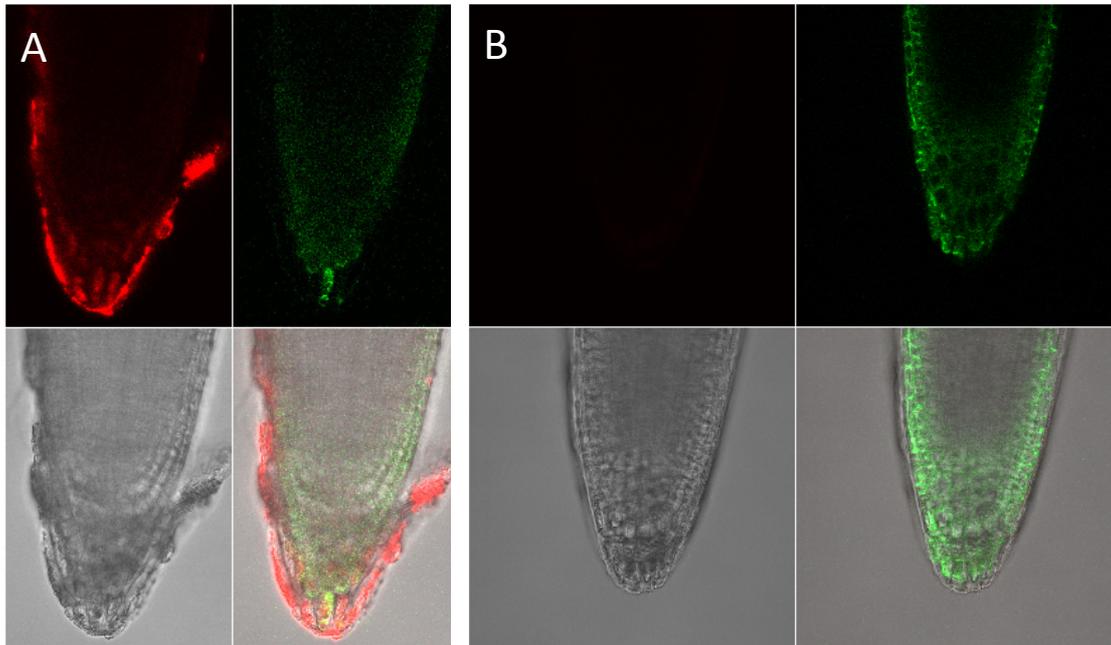


Figure S4. Original four panels for each of (A–F) in Figure 3. Four panels were: top left, AgNPs (in red); top right, GFP (in green); bottom left, brightfield; bottom right, composite of the three.

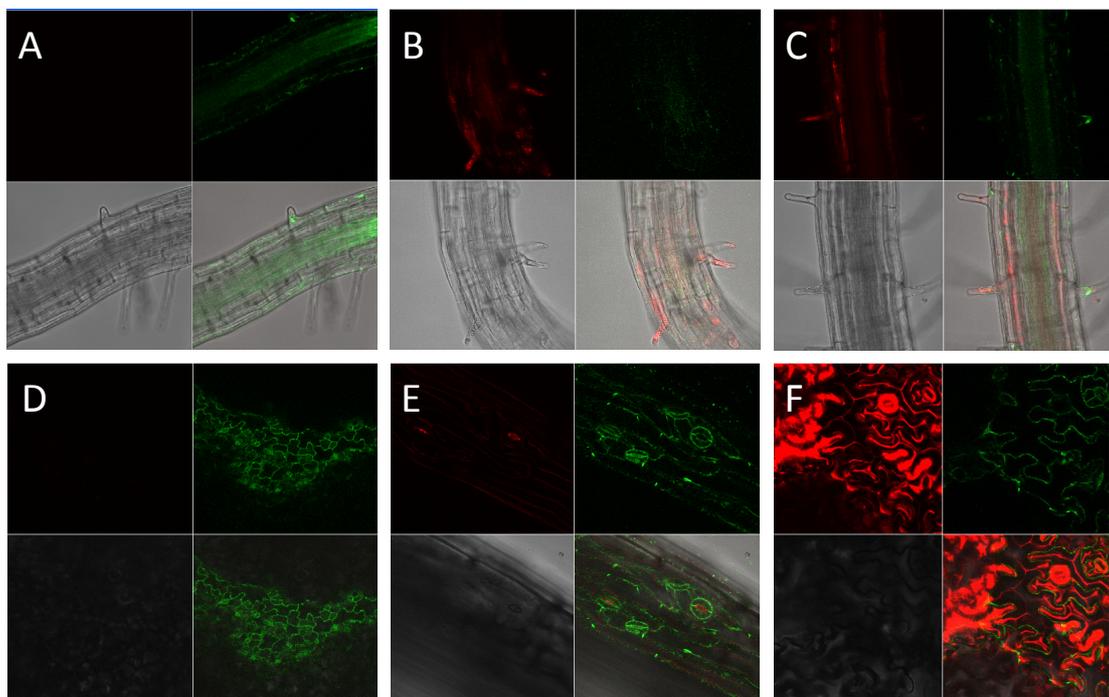


Figure S5. Using an energy dispersive X-ray spectroscopy (EDS) to view signals of Ag. (A) SEM image of one AgNPs-treated root hair; (B) EDS-detection of Ag (*i.e.*, turquoise color) in addition to show other different elements (C, O, K, S).

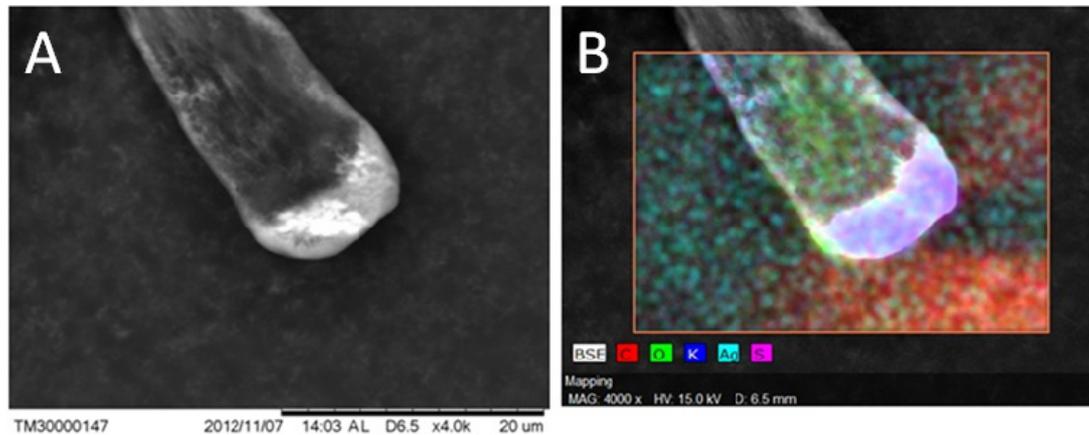


Figure S6. Lateral root primordia and lateral roots of AgNP-treated Arabidopsis plants. (A,B) 14 DAP; (C) 17 DAP; (D) control of 17 DAP. Each figure (A–D) contains four panels: top left, AgNPs (in red); top right, GFP (in green); bottom left, brightfield; bottom right, composite of the three. (A) Few AgNPs entered a lateral root, but overall the lateral root was functional. (B) Some AgNPs entered a lateral root primordium. (C) AgNPs already entered vascular tissue and its lateral root. (D) Control root does not have AgNPs.

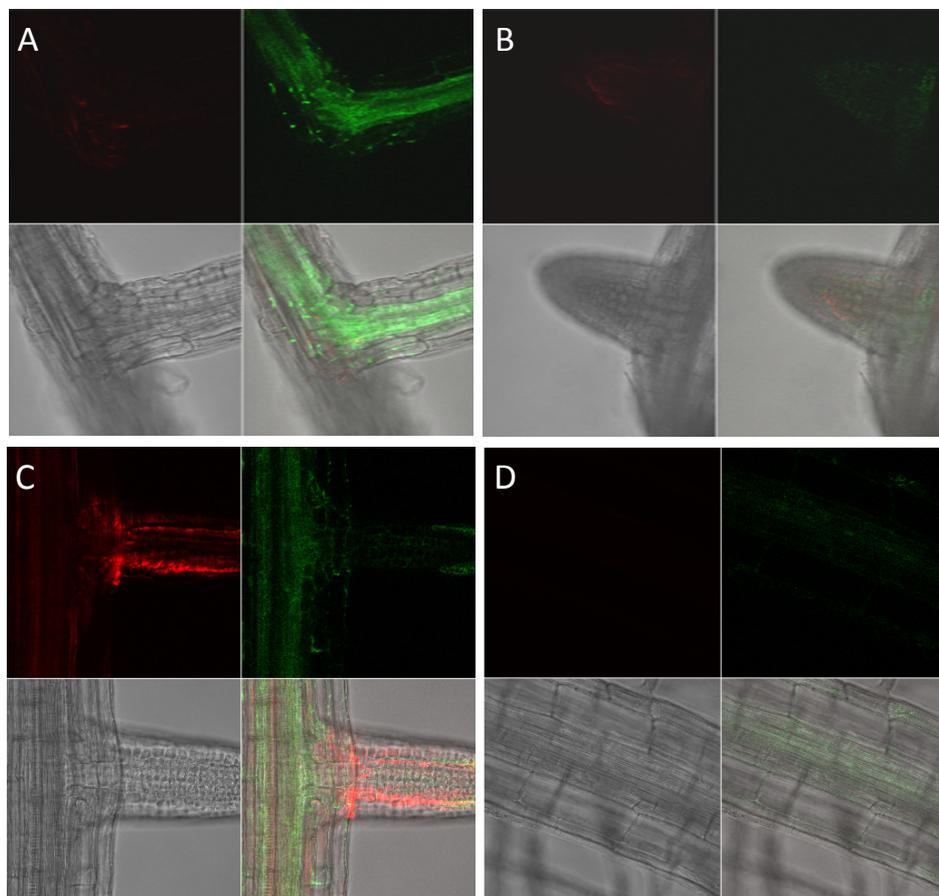
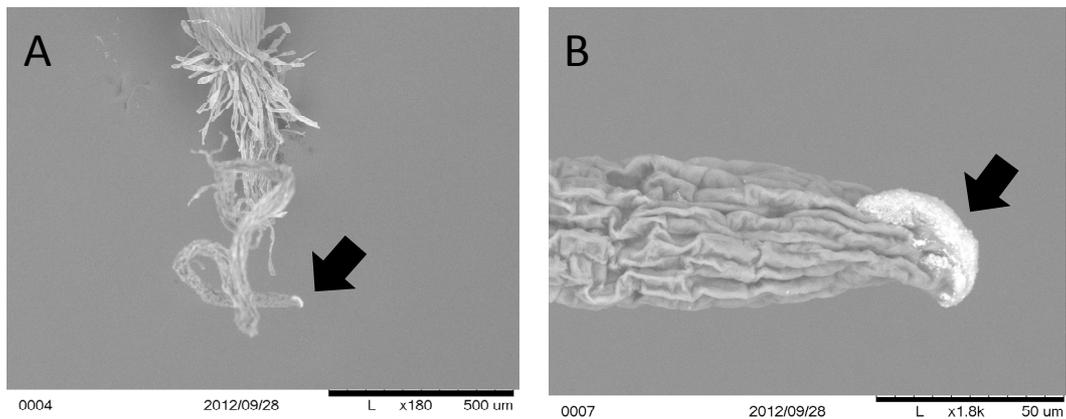


Figure S7. Detection of AgNP accumulation in root tips by SEM. (A) Overview of an Arabidopsis root with AgNP accumulation in its tip (black arrow); (B) Enlarged tip of (A).



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