

Supplementary Material

Cerium oxide nanoparticles promoted lateral root formation in *Arabidopsis* by modulating reactive oxygen species and Ca²⁺ level

Guangjing Li^{A,B}, Quanlong Gao^{A,B}, Ashadu Nyande^{A,B}, Zihao Dong^{A,B}, Ehtisham Hassan Khan^{A,B}, Yuqian Han^{A,B}, and Honghong Wu^{A,B,C,D,}*

^ANational Key Laboratory for Germplasm Innovation and Utilization of Horticultural Crops, The Center of Crop Nanobiotechnology, College of Plant Science and Technology, Huazhong Agricultural University, Wuhan 430070, China.

^BHubei Hongshan Laboratory, Wuhan 430070, China.

^CShenzhen Institute of Nutrition and Health, Huazhong Agricultural University, Shenzhen 511464, China.

^DShenzhen Branch, Guangdong Laboratory for Lingnan Modern Agriculture, Genome Analysis Laboratory of the Ministry of Agriculture, Agricultural Genomics Institute at Shenzhen, Chinese Academy of Agricultural Sciences, Shenzhen 511464, China.

*Correspondence to: Honghong Wu National Key Laboratory for Germplasm Innovation and Utilization of Horticultural Crops, The Center of Crop Nanobiotechnology, College of Plant Science and Technology, Huazhong Agricultural University, Wuhan 430070, China Email: honghong.wu@mail.hzau.edu.cn

Table S1**Table S1.** qPCR primers for *ACA* genes in *Arabidopsis*.

| Gene Names | Sense primers (5'-3') | Antisense primers (5'-3') |
|----------------|------------------------------------|----------------------------------|
| <i>AtACA1</i> | AGTGGCGAGTATTCTGCTTGTTG TG | GACTTAATGTCACAGCCAACGG CAG |
| <i>AtACA2</i> | GAGTTACTAGAACTGATTCCAA AGATTCAG | ACAACAATTGAACAGCAGTTAA AGGAGC |
| <i>AtACA8</i> | ATGAACACGCCACTAGAGTGAA | AGCGAATTTACCAAGGAACTCA |
| <i>AtACA10</i> | TGAAGAGTAAGCCAAATGCTGA | GTGATAGAGATGATGCCACAA |