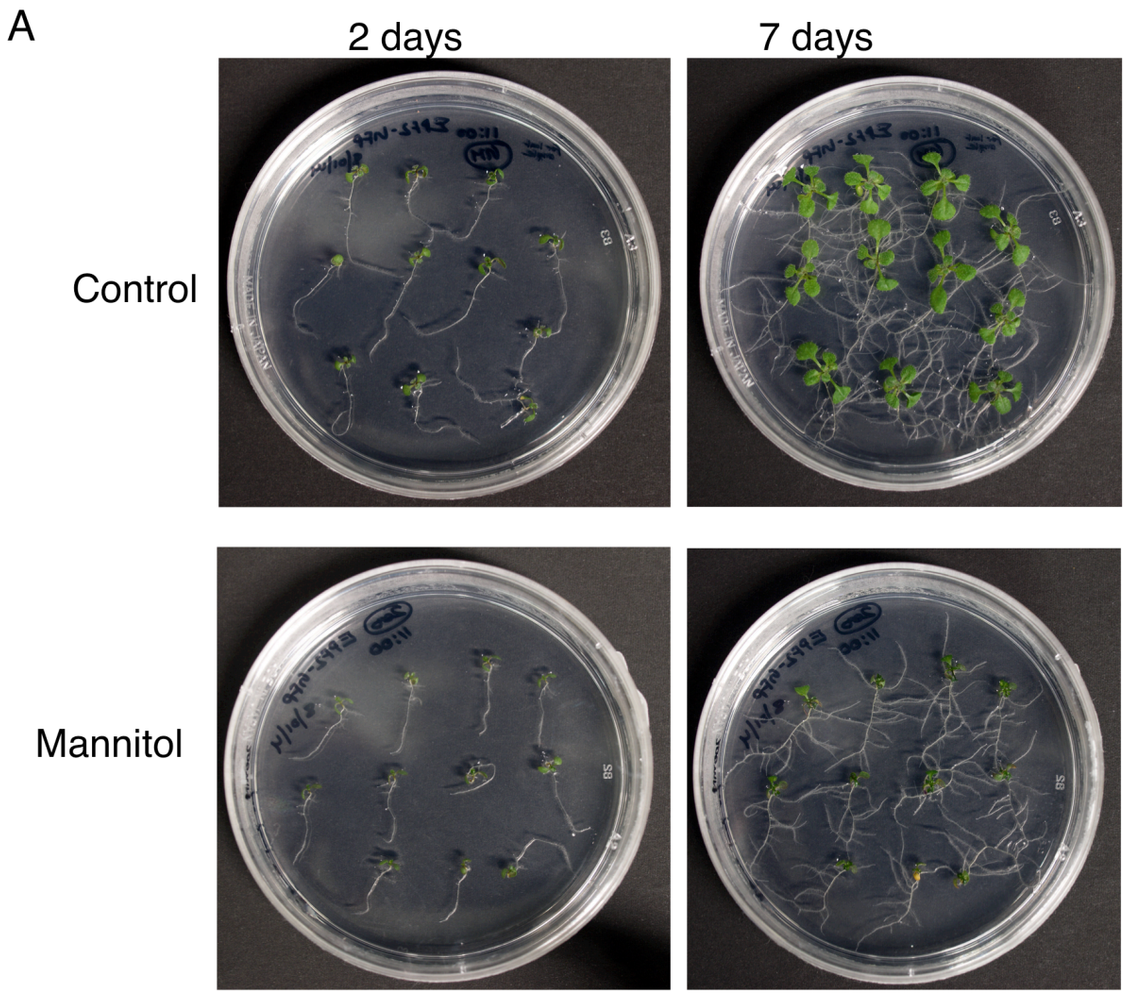

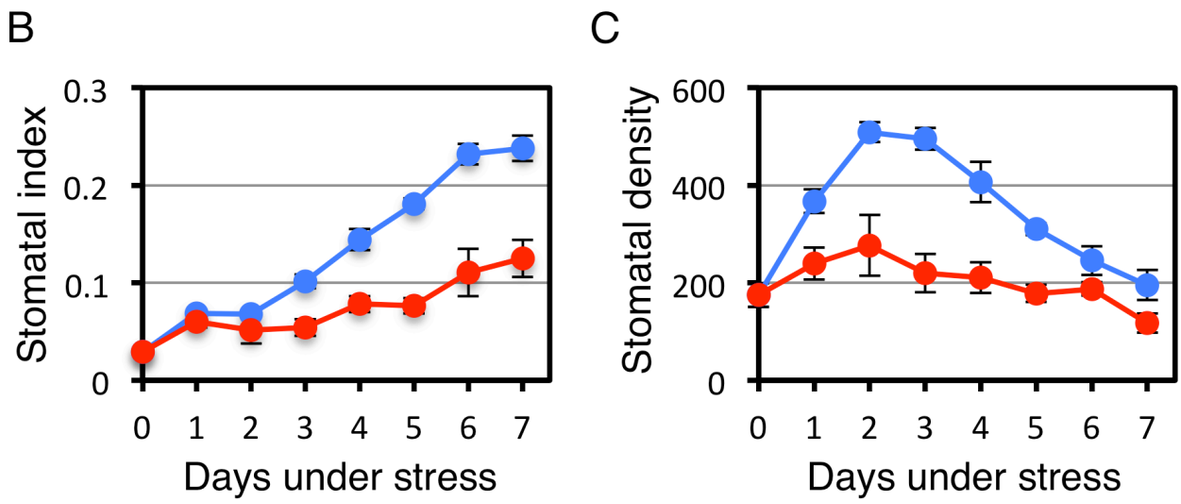

Fig. S1. Effect of 200 mM mannitol on overall plant growth and stomatal development. (A) Five-day-old Arabidopsis plants were transferred onto a GM-gel plate (top) or a GM-gel plate (9 cm diameter) containing 200 mM mannitol (bottom) and cultured. We used Arabidopsis carrying EPF2pro::*GFP*, which does not affect growth, just for an additional purpose. Photographs were taken 2 days or 7 days after the time they were transferred. (B) Five-day-old Arabidopsis plants were transferred onto GM-gel plates (blue) or plates containing 200 mM mannitol (red), and the first leaves from different plants were excised for measurement of stomatal index (B) or stomatal density (C), respectively, every day. Data are shown as mean ± standard deviation ($n \geq 6$).

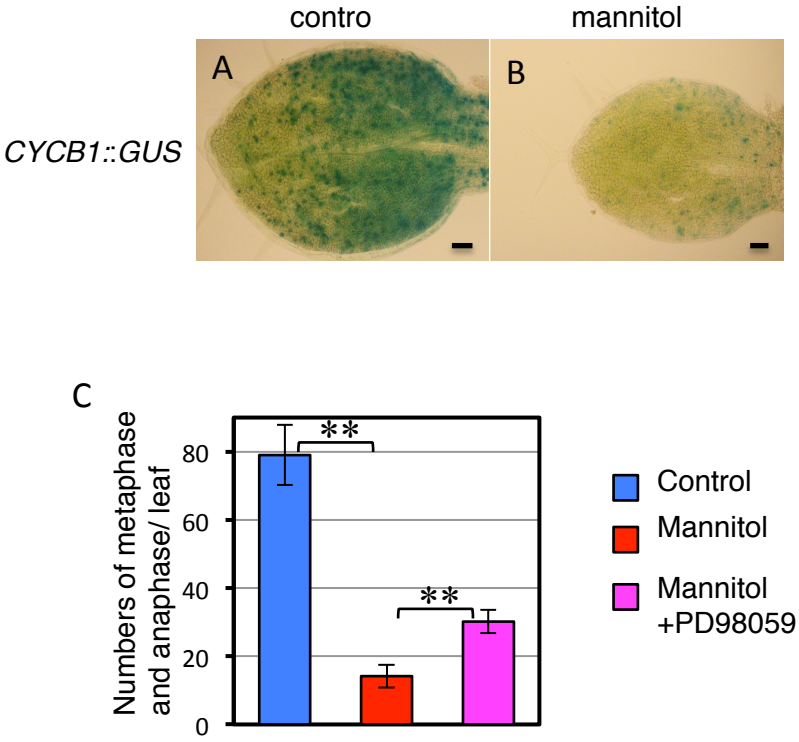

Fig. S2. Effect of osmotic stress on cell proliferation. Five-day-old plants carrying CYCB1-GUS were grown on (A) GM-gel plates or (B) GM-gel plates containing 200 mM mannitol for 24 h, and then the first leaves were stained for GUS. (C). The role of the MAPK cascade for osmotic stress–induced cell proliferation stop. Five-day-old plants carrying CER6pro::H2B-GFP were grown for 18 h in control liquid nutrient medium with or without mannitol, or in the mannitol plus 25 µM PD98059. Then, umbers of dividing cells (metaphase and anaphase) of the first true leaves were counted.Scale bar, 50 µm. Data are shown as mean ± standard deviation ($n \geq 6$). **, $P < 0.01$

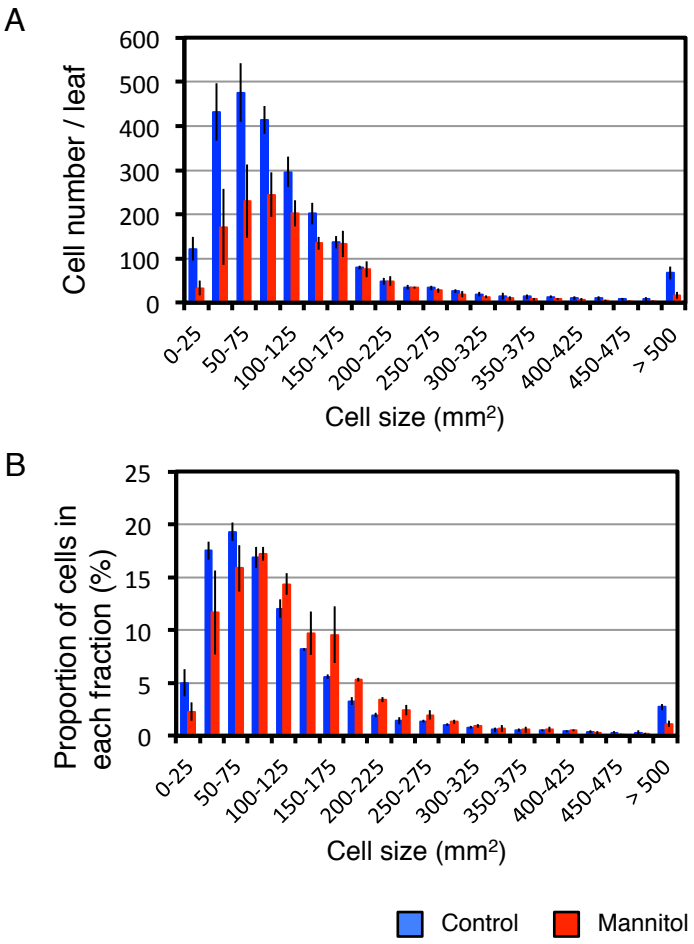

Fig. S3. Effect of 24-h treatment with mannitol on size distribution of NGC cells. (A) Histograms of sizes of NGCs on the abaxial side of the leaf. (B) Histogram of cell sizes of NGCs shown in % in each fraction. Blue, control; red, 200 mM mannitol. Data are shown as mean ± standard deviation. *n*=3.

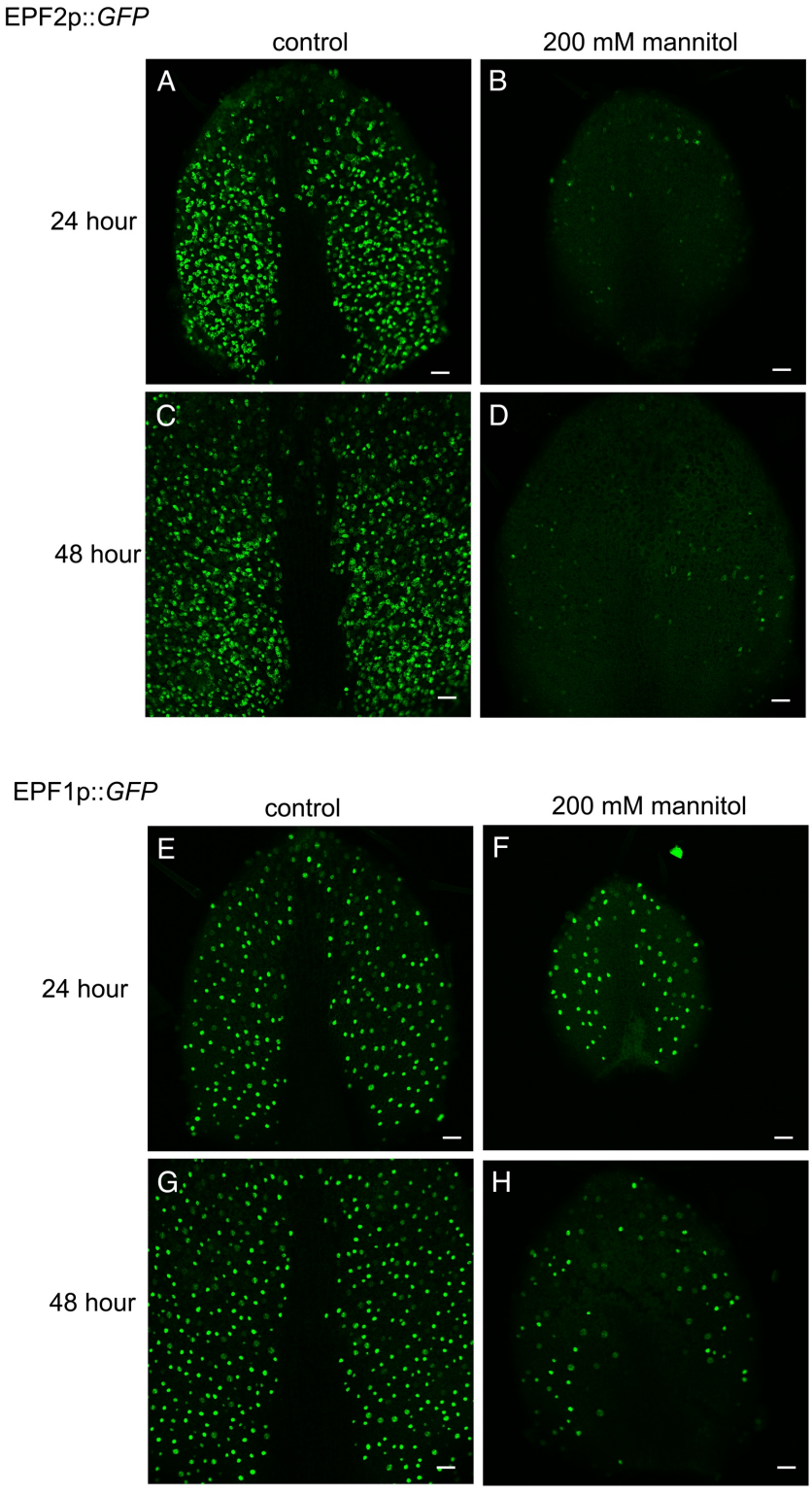

Fig. S4. Effect of a 24-h period of osmotic stress on the numbers of MMCs and meristemoids. Five-day-old plants carrying a MMC marker, EPF2pro::GFP (A-D), or a meristemoid marker, EPF1pro::GFP (E-H), were treated with the liquid nutrient medium (A, C, E, G) or liquid nutrient medium containing 200 mM mannitol (B, D, F, H) for 24-h (A, B, E, F) or 48-h (C, D, G, H). Scale bars, 50 μm.

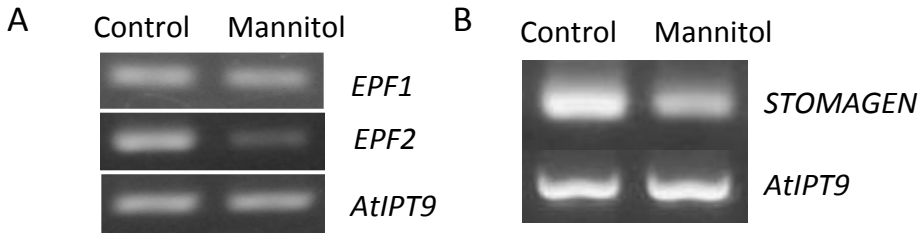

Fig. S5. Effect of osmotic stress on the expression of genes encoding three EPF-family peptides: EPF1, EPF2, and stomagen. (A, B) RT-PCR experiments show that the *EPF1* expression was unchanged and that *EPF2* and *STOMAGEN* expression decreased 24 h after transferring the plants onto plates containing 200 mM mannitol. *AtIPT9*, encoding a t-RNA isopentenyltransferase, was used as a control.