

Online Figures:

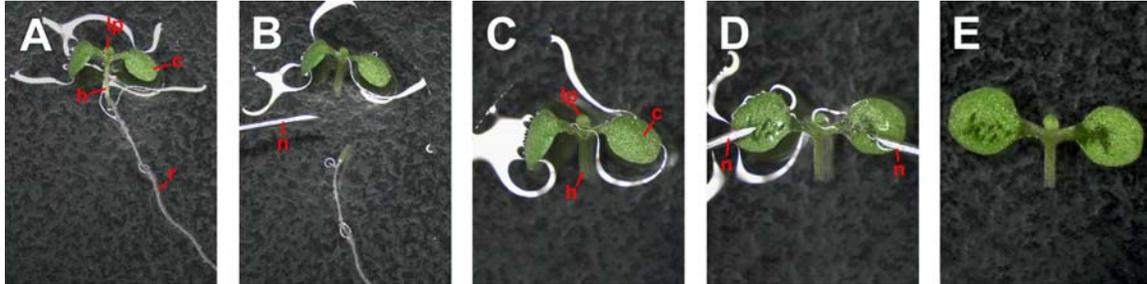


Fig. 1. Mounting of *Arabidopsis* seedlings for confocal visualization of the leaf primordia. (c) cotyledon; (h) hypocotyl; (lp) leaf primordium; (n) needle; (r) root. (A) Seedling on a drop of water on microscope slide. (B) Seedling with hypocotyl cut above the root-hypocotyl junction. (C) Seedling prior to flattening. (D) Seedling flattened by pulling on the cotyledons with needles. (E) Seedling compressed by coverslip.

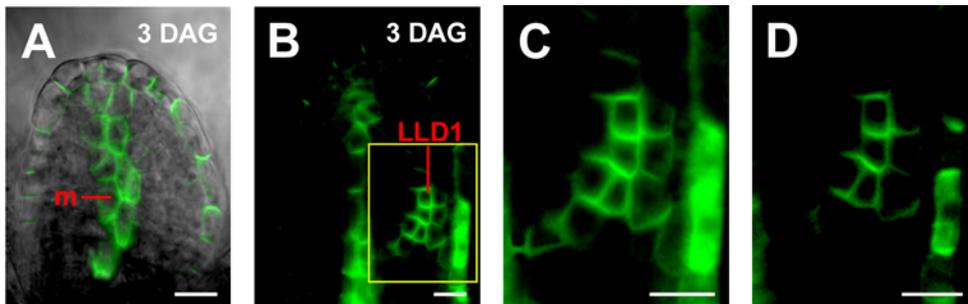


Fig. 2. Confocal visualization of PIN1:GFP in *Arabidopsis* leaf primordia. (Upper right) Primordium age in days after germination (DAG). (m) midvein; lower loop domain of first (most distal) loop (See **ref. 4**). (A) Merged DIC and GFP image of a first leaf primordium at 3 DAG, showing PIN1:GFP expression in the midvein and epidermis. (B) GFP image of a first leaf primordium at 3 DAG, showing PIN1:GFP expression in the midvein, lateral epidermis and the lower domain of the first loop. (C) Enlargement of the area boxed in B, showing the complete PIN1:GFP expression pattern in the lower loop domain of the first loop. (D) Same area shown in C, imaged with a smaller pinhole to visualize PIN1:GFP localization in the areas of highest expression. Bars: A-D, 10 μ m. (Reproduced with permission from CSHL Press.)

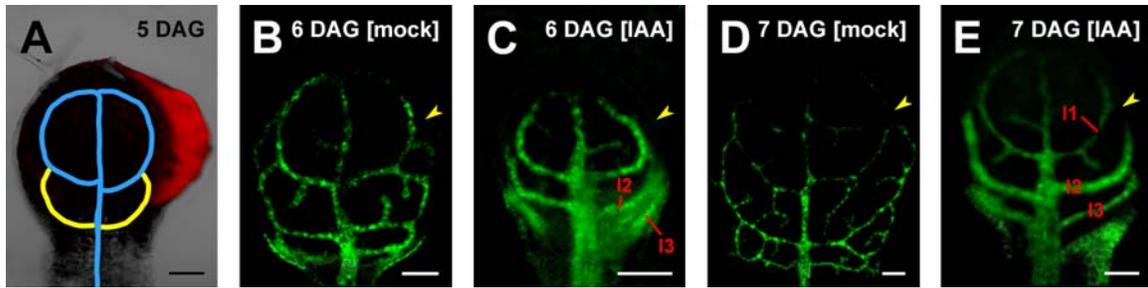


Fig. 3. Effects of local auxin application on PIN1:GFP expression in *Arabidopsis* leaf primordia. (*Upper right*) Primordium age in days after germination (DAG), and treatment (IAA/mock, in square brackets.) (Yellow arrowheads) Site of application; (11, 12, 13) loop 1, loop 2, loop 3 (ordered distal to proximal, see **ref. 4**). **(A)** DIC image of a first leaf primordium 5 DAG, showing predicted positions of procambium (blue) and marker-expression defined preprocambium (yellow). **(B)** GFP image of a mock-treated first leaf primordium 6 DAG, showing the PIN1:GFP expression in the midvein, in three loops and in higher order veins. **(C)** GFP image of a IAA-treated first leaf primordium 6 DAG, showing increased PIN1:GFP expression in the area of the third loop on the treated side. **(D)** GFP image of a IAA-treated first leaf primordium 7 DAG, showing an extra fourth loop in the PIN1:GFP pattern on the treated side. **(E)** Bars: A-E, 50 μm . (Reproduced with permission from CSHL Press.)