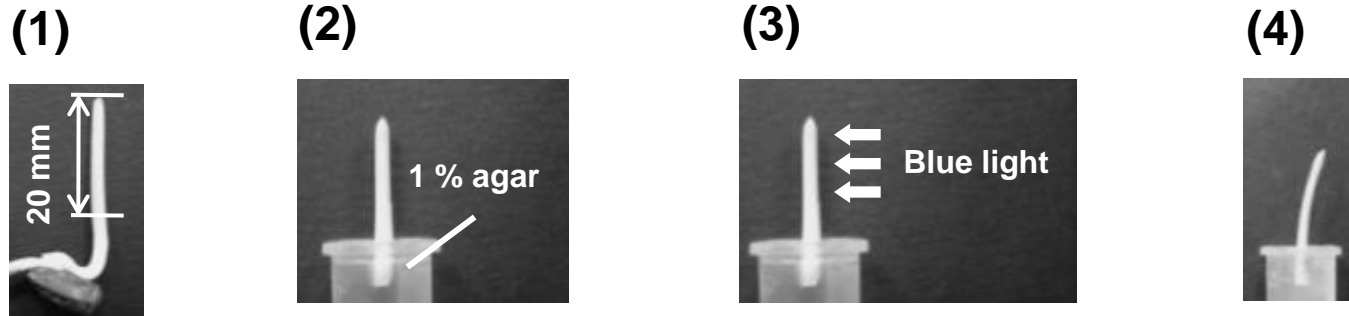


***NPH3-* and *PGP-like* genes are exclusively expressed in apical tip region essential for blue-light perception and lateral auxin transport in maize coleoptiles**

Satomi Matsuda, Tomomi Kajizuka, Akeo Kadota, Takeshi Nishimura, and Tomokazu Koshiba

Supplementary Material

Supplemental Figure 1

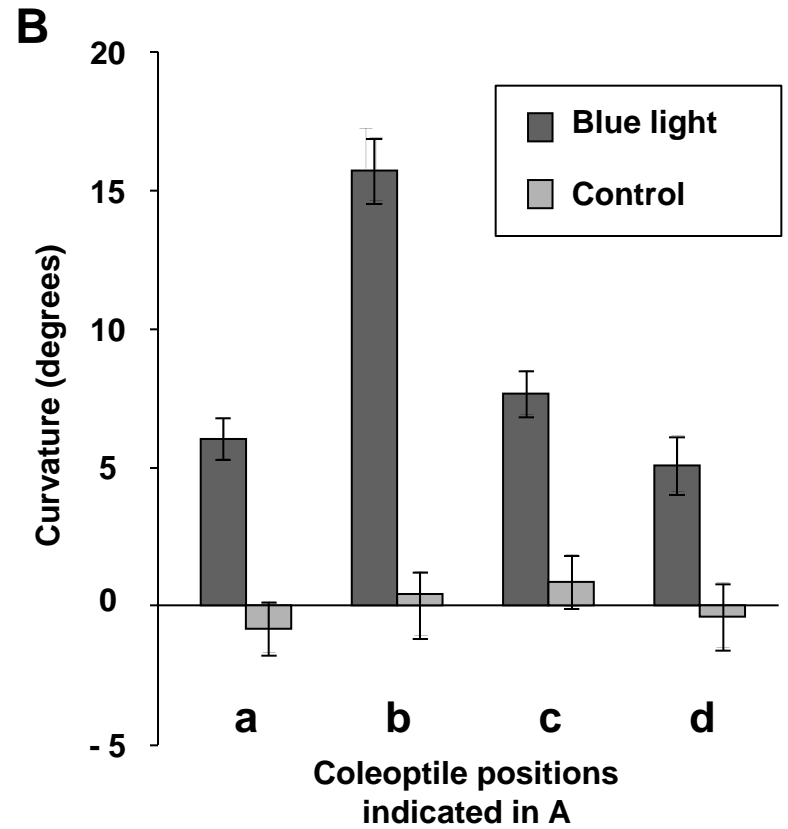
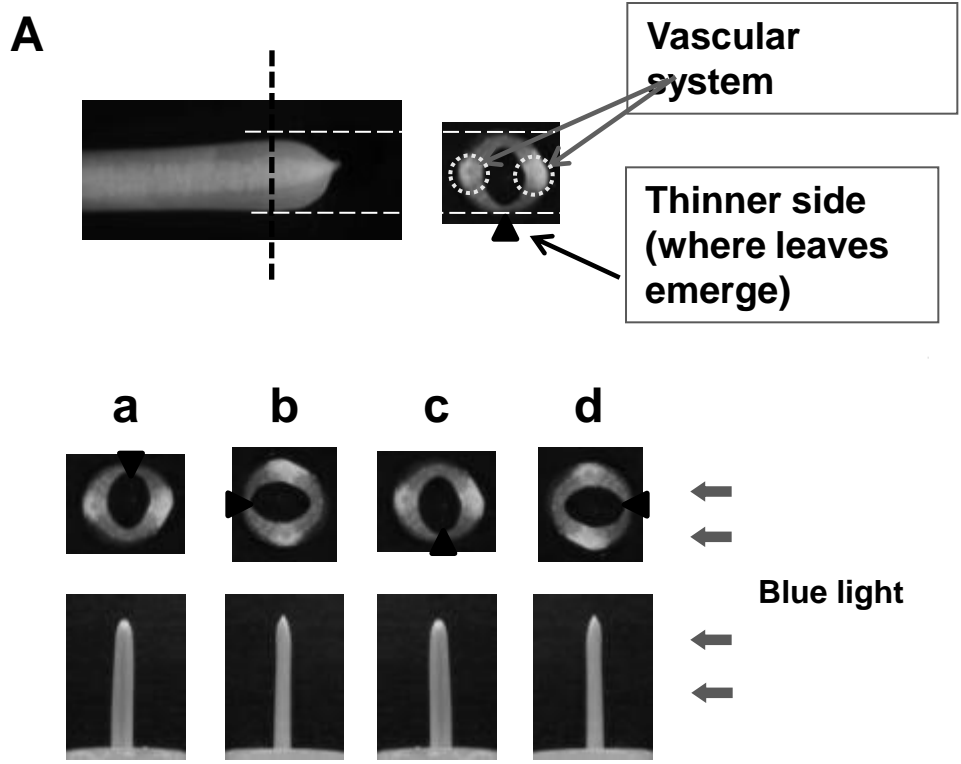


Supplemental Figure 1.

Experimental system for analyzing phototropic curvature.

- (1) Maize seedlings were grown at 25°C under red light for 2.5 days, and then 2-cm long coleoptile segments were excised from seedlings.
- (2) Bases of coleoptiles were fixed in 1% agar.
- (3) Coleoptile segments were irradiated with unilateral blue light (LED, light-emitting diode) from the right side.
- (4) Irradiated coleoptiles were kept at 28°C under red light. Photos were taken at various times points in each experiment.

Supplemental Figure 2



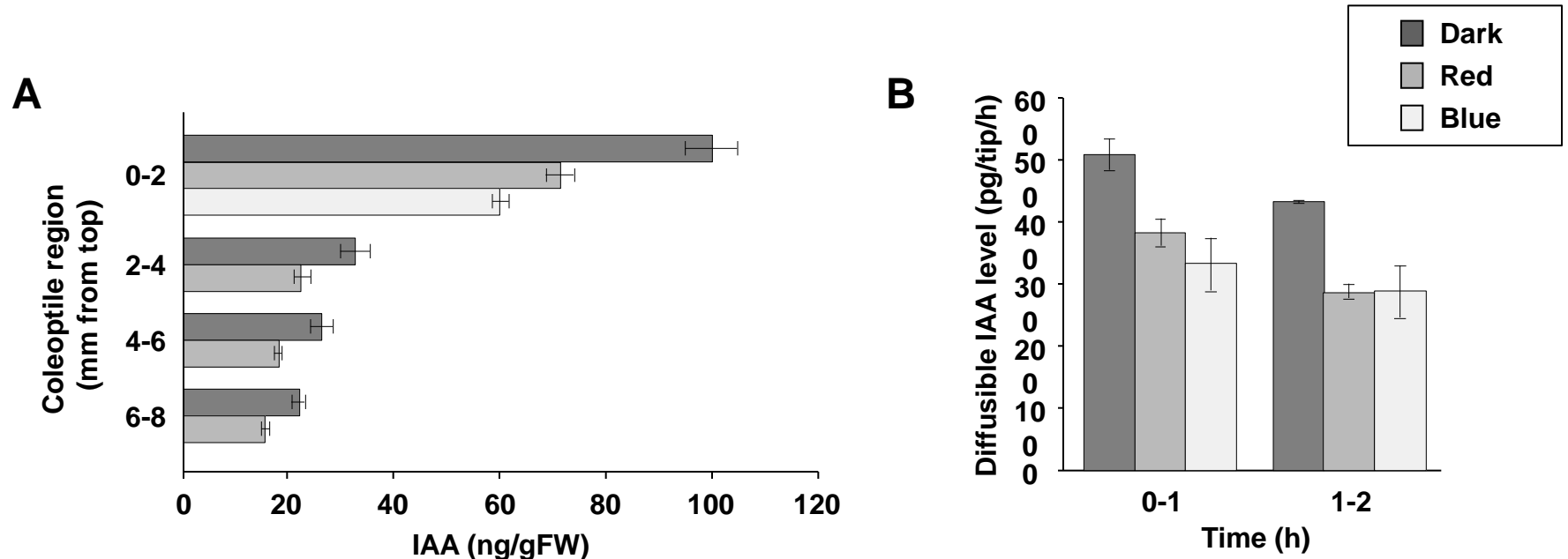
Supplemental Figure 2.

Relationship between coleoptile position and degree of phototropic curvature.

A, Coleoptile segments (2-cm long) were placed vertically in four different positions as shown in a, b, c, and d (thinner side marked by black triangle). Coleoptiles were irradiated with unilateral blue light (from the right side) for 1st positive curvature under normal gravity conditions.

B, Phototropic curvature of coleoptiles in each group in (A). Degree of curvature was determined at 90 min after blue light stimulation. Data were obtained from five independent experiments and values are means \pm SE.

Supplemental Figure 3



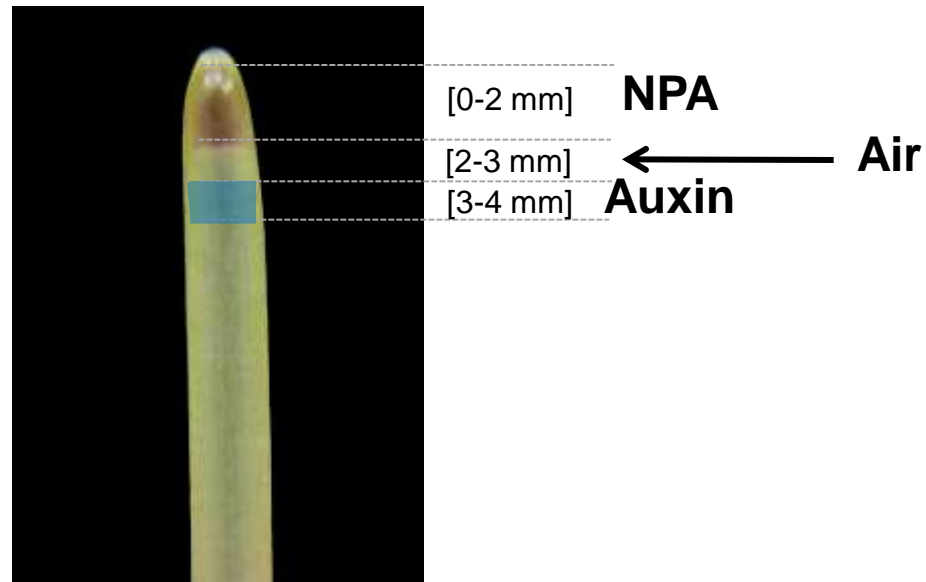
Supplemental Figure 3.

Amount of free IAA in tips (A), and free IAA diffusing from tip sections into agar blocks (B). For plant materials used in A and B, seeds were germinated under red light for 2 days and then in darkness for 0.5 day (Dark), under red light for 2.5 days (Red), or under red light for 2.5 days and then irradiated with unilateral blue light (from the right side) for 30 min for 1st positive curvature (Blue). IAA levels were determined by GC-SIM-MS.

(A) IAA levels in 2-mm thick coleoptile sections (from top towards the node). Values are from three independent experiments and are means \pm SE.

(B) Three tip sections were placed on an agar block, and free IAA in the agar was determined at indicated times. Values are from two independent experiments and are means \pm SE.

Supplemental Figure 4



Supplemental Figure 4.

Applications of NPA and auxin (results shown in Figure 3). Maize coleoptile segments (3-mm) were excised, then 100 μM NPA in 10 mM KPB and auxins were applied using a capillary tube to inner top 2-mm (shown in red) and 4-5 mm region (shown in blue), respectively. Coleoptile segments were fixed in agar blocks and photo- and gravi-curvature were observed.