

Accessory Publication

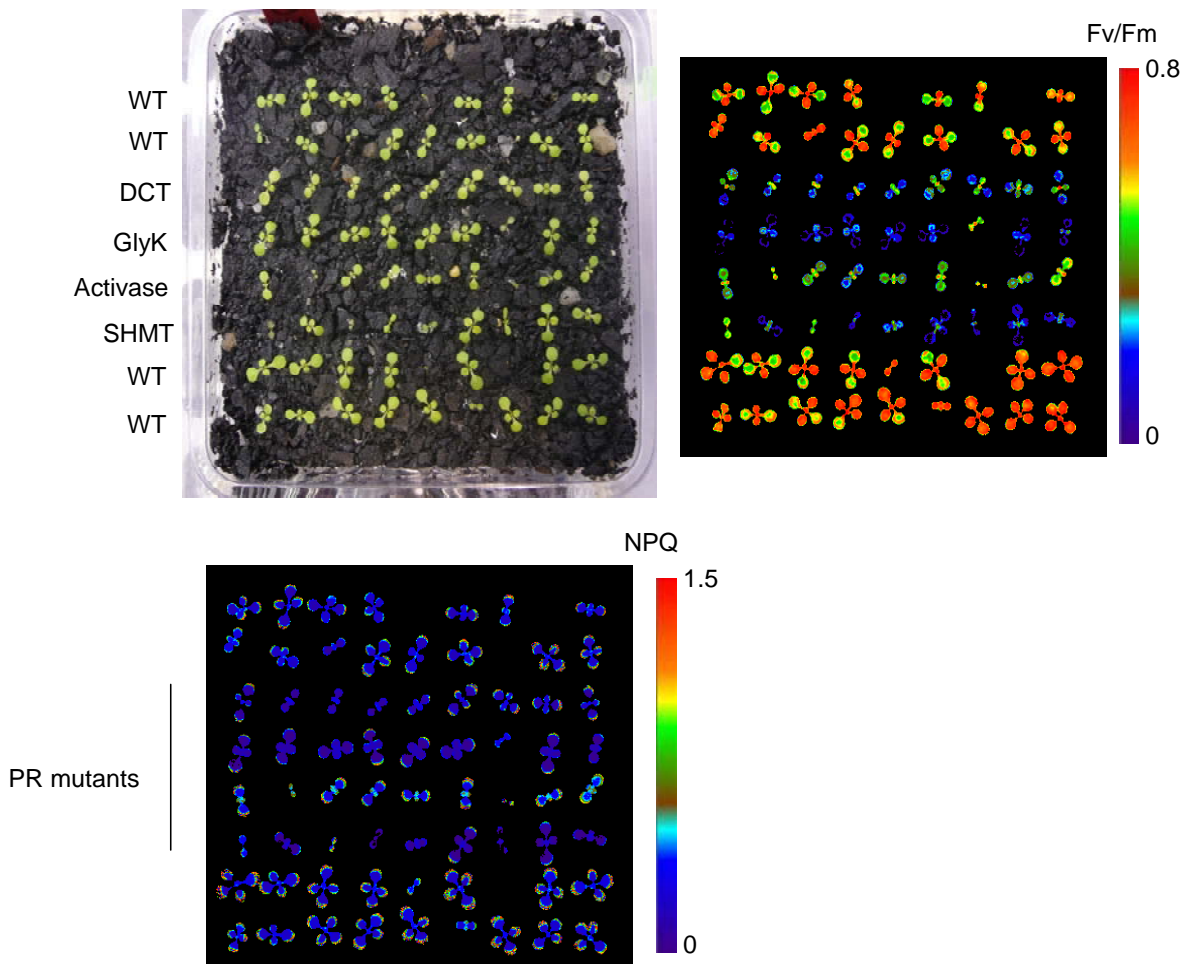


Fig. S1. Chlorophyll fluorescence imaging of dark adapted F_v/F_m and NPQ of *Arabidopsis thaliana* photorespiration mutants. Mutants included in the screen were: DCT, dicarboxylate transporters; GlyK, Glycerate kinase; Activase, Rubisco activase; SHMT, serine hydroxymethyl transferase. Seedlings were grown at 0.6% CO_2 for 8 days (22/19°C day/night, 10-h days) and transferred to air for 2 days. The visible image on the left are seedlings in soil before transfer and the F_v/F_m image (right) was taken at the end of the second day after transfer. The F_v/F_m and NPQ scale bars are shown on the right of each respective image.

Primary M2 screening process

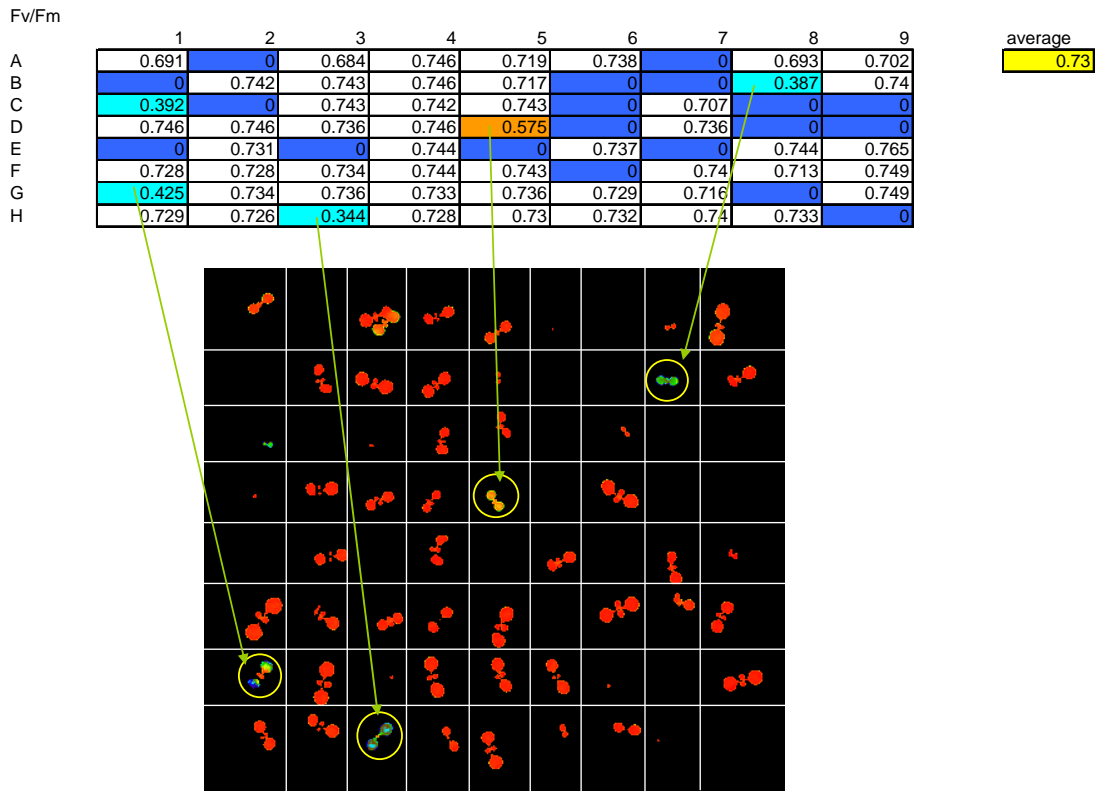


Fig. S2. An example fluorescence F_v/F_m screening image after Arabidopsis seedlings in grid array were transferred to zero CO₂ for 24 h. The same image is shown in Fig. 4, but the above image shows the corresponding coloured spreadsheet where putative mutants could be identified by cell colours as well as the reduced F_v/F_m values.

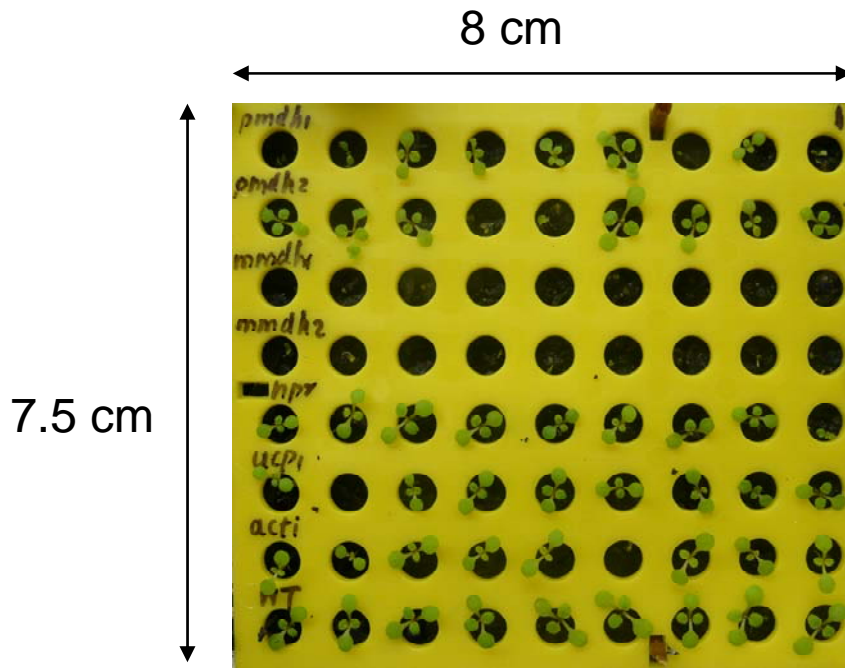


Fig. S3. Arabidopsis seedlings (8 days old) growing in the yellow plastic grids used for planting guides and fluorescence imaging. The yellow plastic grids were obtained from 200- μ L plastic pipette tip boxes and modified to contain an 8×9 grid array of holes.



Fig. S4. Plastic boxes for exposure of seedlings to zero CO₂ in the light. Each box contained six seedling pots, with a layer of CO₂ absorbing granules on the bottom. Note: the yellow plastic planting guides described in the text were not used in this experiment.

A phenotypes – family 18

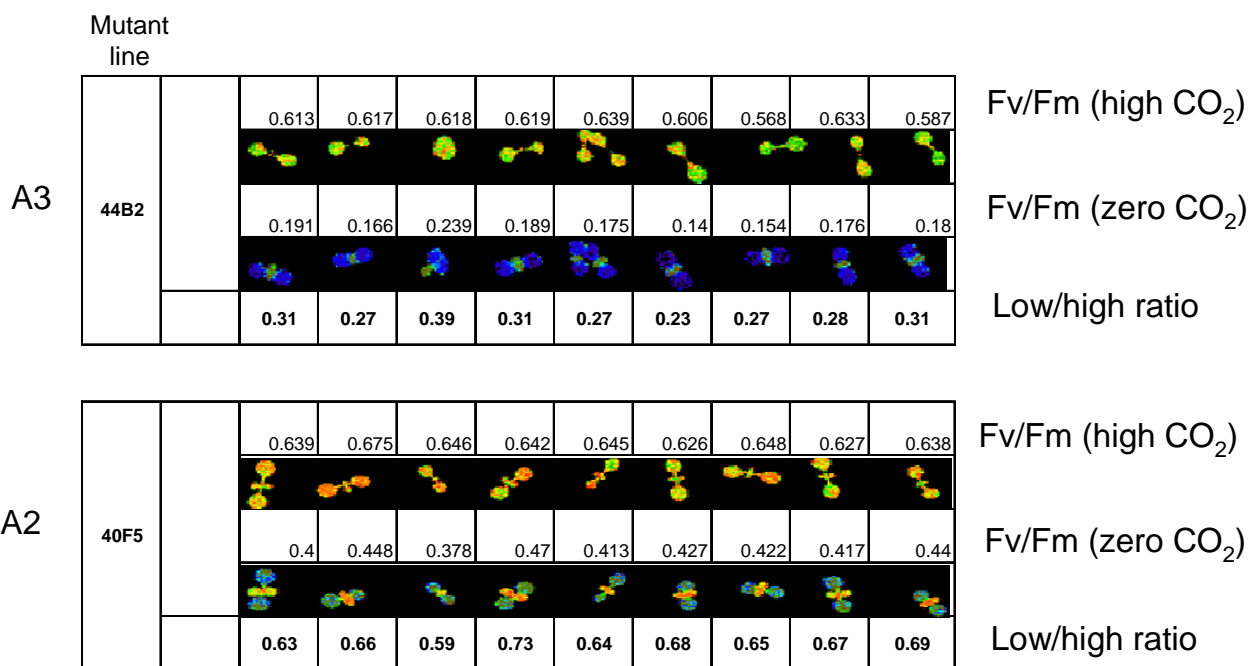


Fig. 5. Rescreening of M3 seed of two putative A type mutants in rows as described in the text. Two rows of images are shown for each mutant. The upper row is an F_v/F_m image prior to transfer to zero CO₂. The lower row is the image after 24 h exposure to zero CO₂. The F_v/F_m values are shown above each image and the bottom row shows the ratio of low/high F_v/F_m values.

B1 phenotypes family 18

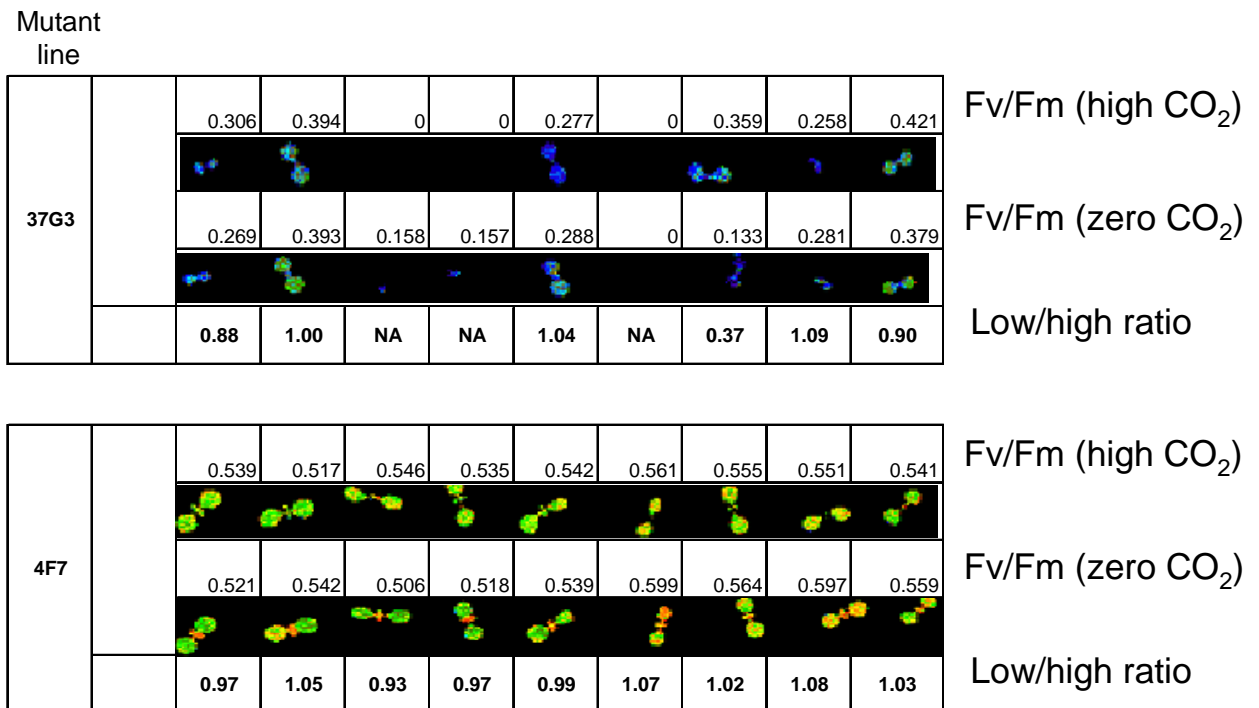


Fig. S6. Rescreening of M3 seed of two putative B1 type mutants in rows as described in the text. Two rows of images are shown for each mutant. The upper row is an F_v/F_m image prior to transfer to zero CO₂. The lower row is the image after 24 h exposure to zero CO₂. The F_v/F_m values are shown above each image and the bottom row shows the ratio of low/high F_v/F_m values.

B2 phenotypes family 17

Mutant line

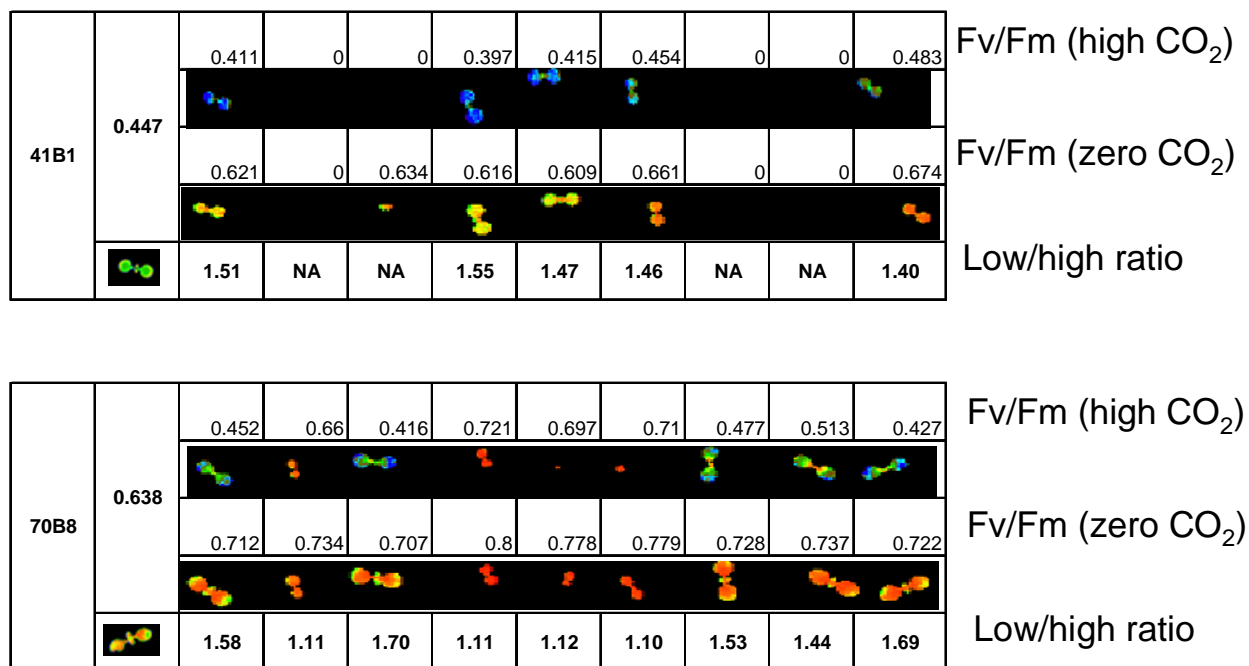


Fig. S7. Rescreening of M3 seed of two putative B2 type mutants in rows as described in the text. Two rows of images are shown for each mutant. The upper row is an F_v/F_m image prior to transfer to zero CO₂. The lower row is the image after 24 h exposure to zero CO₂. The F_v/F_m values are shown above each image and the bottom row shows the ratio of low/high F_v/F_m values.