Intercellular movement of transcription factor proteins is essential for plant development. The R3 type MYB transcription factor protein, CAPRICE (CPC), moves from non-hair cells to root-hair cells where it promotes root hair formation in *Arabidopsis* root epidermis. In contrast, the CPC homolog of ENHANCER OF TRY AND CPC1 (ETC1) cannot move in root epidermal cells. In this work, we present protein localization data of CPC-ETC1 chimeric proteins. Localization of CPC-ETC1-GFP fusion proteins of chimera1 and chimera2 transgenic plants was observed using confocal laser scanning microscope. Insertion of ETC1-specific amino acids into CPC somewhat prevents normal protein localization of CPC in root epidermal cells. Cell-to-cell movement of chimera1 and chimera2 proteins from non-hair cells to root-hair cells was interfered. Nuclear localization was also inhibited, especially in chimera1.

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How data was acquired
Confocal laser scanning microscope (Zeiss LSM-510 Meta)

Data format
Raw

Experimental factors
–

Experimental features
–

Data source location
Higashi-Hiroshima, Japan

Data accessibility
Data are presented in this article

Related research article
Effect of amino acid substitution of CAPRICE on cell-to-cell movement ability in Arabidopsis root epidermis, Developmental Biology, in press.

Value of the data

• The data provide information about the protein localization and cell-to-cell movement properties of CPC-ETC1 chimeric proteins in Arabidopsis root epidermal cells.
• This study shows the importance of precise amino acid sequence of CPC in proper cell-to-cell movement ability in Arabidopsis root epidermal cells.
• The cell-to-cell movement data of chimera proteins in Arabidopsis root epidermis helps to understand the functions of R3-type MYB transcription factors.

1. Data

Fig. 1 shows the localization of CPC-ETC1 chimera-GFP fusion proteins in Arabidopsis root epidermis. The level of GFP fluorescence was slightly lower in root hair cells than in non-hair cells of all transgenic plants of Chimera 1#2, Chimera 2#2, and Chimera 2#3 in this study. Clear nucleus localization of the GFP fusion protein was not observed in Chimera 1#2 transgenic epidermal cells.

2. Experimental design, materials and methods

2.1. Plant material and growth conditions

This study utilized previously reported transgenic Arabidopsis thaliana (L.) Heynh. lines CPC-ETC1 Chimera 1 #2, Chimera 2 #2, and Chimera 2 #3 [1] of the ecotype Columbia (Col-0). Seeds were surface-sterilized and sown on 1.5% agar plates as described previously [2]. The plates with sawn seeds were kept at 4 °C for 2 days and then incubated at 22 °C under constant white light (50–100 µmol m⁻² s⁻¹). For each transgenic line, five-day-old seedlings were examined for the GFP fused chimeric protein localization.

2.2. Gene constructs

Gene constructs for CPC-ETC1 chimeric proteins were generated in the CPCp:CPC:2xGFP backbone [3] by TaKaRa (TaKaRa, Japan). To create the Chimera 1 construct, ETC1-specific DNA sequence corresponding to the NT amino acid sequence was inserted into the CPC coding region between the 11th (D) and 12th (K) position of the CPC amino acid sequence in CPCp:CPC:2xGFP [1]. To create the Chimera 2 construct, ETC1-specific DNA sequence corresponding to the HLKTNPTIV amino acid sequence was inserted into the CPC coding region between the 21st (K) and 22nd (A) position of the CPC amino acid sequence in CPCp:CPC:2xGFP [1].

2.3. Transgenic plants

The floral dip method was used for the plant transformation in this study [4], and the transgenic plants were selected on 0.5× Murashige and Skoog’s agar plates containing 50 mg/L kanamycin. The homozygous transgenic lines were selected for kanamycin resistance.
2.4. Microscopy

For each transgenic line of Chimera 1#2, Chimera 2#2, and Chimera 2#3, five-day-old seedling roots were analyzed for GFP fluorescence. The transgenic GFP fusion lines were stained with 5 µg/mL propidium iodide for 30 s and then washed with water. Confocal images were obtained with a Zeiss LSM-510 Meta confocal laser scanning microscope using 488-nm laser lines for GFP excitation. Image processing was performed with Photoshop version 7.0 (Adobe Systems, CA, USA).

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at http://dx.doi.org/10.1016/j.dib.2018.04.055.

Transparency document. Supporting information

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