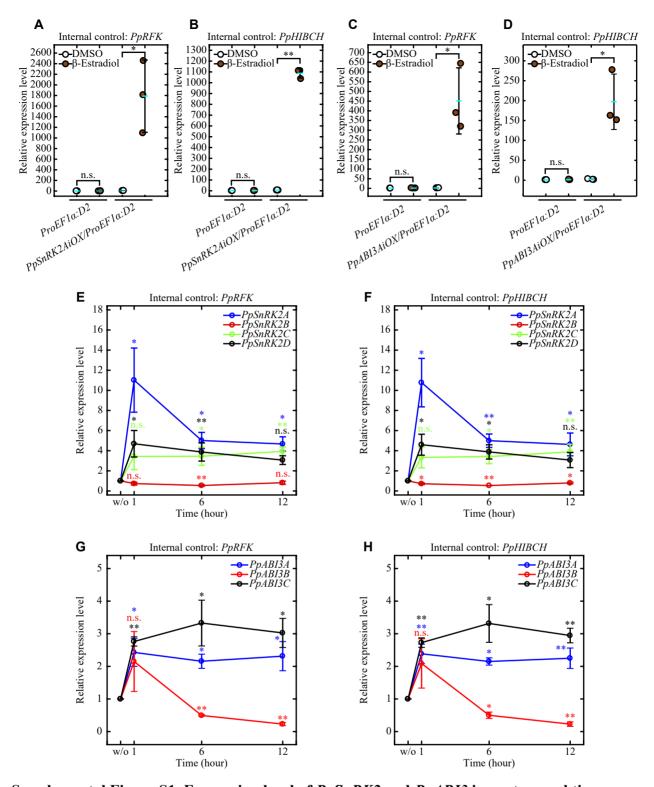


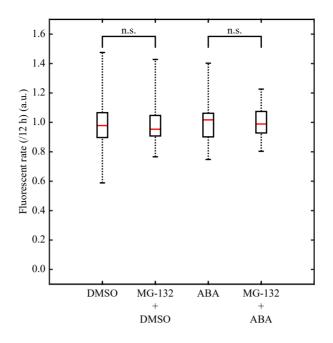
HOKKAIDO UNIVERSITY

Title	Quantitative Imaging Reveals Distinct Contributions of SnRK2 and ABI3 in Plasmodesmatal Permeability in Physcomitrella patens
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Туре	article (author version)
Additional Information	There are other files related to this item in HUSCAP. Check the above URL.
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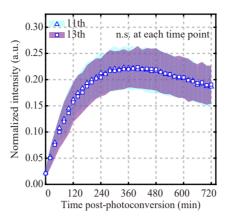


Supplemental Figure S1. Expression level of *PpSnRK2* and *PpABI3* in protonemal tissues. A to D, Relative abundance of *PpSnRK2A* and *PpABI3A* transcripts with DMSO or β -estradiol treatment. E to H, Expression of *PpSnRK2A-D* and *PpABI3A-C* without and after 1-, 6- and 12-hour ABA treatment. The transcript levels were normalized against riboflavin kinase gene (*RFK*) (A, C, E and G) or 3-hydroxyisobutyryl-CoA hydrolase gene (*HIBCH*) gene (B, D, F and H). Data are mean \pm SD (n = 3 for biological replicates, with analytical triplicate in each sample). The *P* value was determined by the Welch's *t*-test, n.s., non-significance ($P \ge 0.05$), *P < 0.05, **P < 0.01.



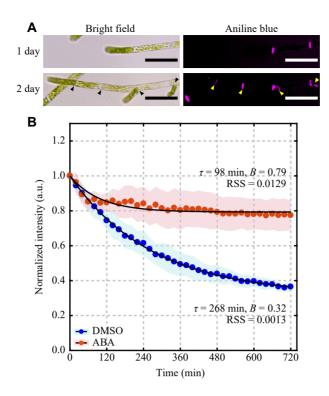
Supplemental Figure S2. Measurement of the Dendra2 degradation rate.

The Dendra2 intensity in protoplasts from $ProEF1\alpha$:D2 was quantified just after and 12 hours after photoconversion to evaluate proteolytic degradation. As the negative control, proteasome inhibitor MG-132 was pretreated 1.5 hours before photoconversion. Treatment of DMSO or ABA was performed just after photoconversion. Box plot shows the distribution of the data with median as a red horizontal line, interquartile range as a black box, and data range as whiskers. n > 46. Statistically significant difference was tested by the Mann-Whitney U-test. n.s., non-significance ($P \ge 0.05$).



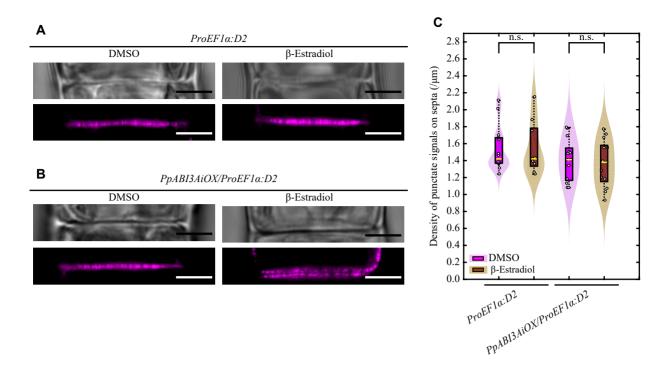
Supplemental Figure S3. Change in fluorescence intensity of Dendra2 in the neighboring cells of the photoconverted cells.

Mean fluorescence intensity of Dendra2 in the neighboring 11th and 13th cells of *ProEF1a:D2*. SD is indicated by the shaded areas. The 11th (n = 15) or 13th (n = 14) cell. The *P* value was determined by the Welch's *t*-test, n.s., non-significance ($P \ge 0.05$).

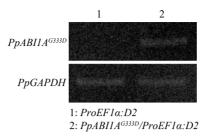


Supplemental Figure S4. Callose signal on newly formed cross walls and intercellular Dendra2 diffusivity under the condition of callose staining with aniline blue.

A, Representative images of protonemata 1 day and 2 days after treatment of the aniline blue solution in *ProEF1a:D2*. Scale bars = 200 μ m. Arrows indicate newly formed cross walls after the cell division. B, Mean fluorescence intensity of Dendra2 at 20-min intervals after photoconversion in the protonemal cells in the presence of aniline blue solution. *ProEF1a:D2* treated with DMSO (*n* = 4) or ABA (*n* = 13). SD is indicated by the shaded areas. The time constant (τ) and immobile fraction (*B*) were determined by fitting the exponential function to the kinetics of mean fluorescence intensity (black solid lines).



Supplemental Figure S5. Live-cell imaging of callose staining in *PpABI3AiOX/ProEF1a:D2*. A and B, Representative images of DIC and fluorescence from callose with aniline blue in *ProEF1a:D2* (A) and *PpABI3AiOX/ProEF1a:D2* (B) for detection of punctate callose signals with DMSO or β -estradiol treatment. Scale bars = 5 µm. (C) The density of punctate signals on cross walls. Each violin plot shows the density distribution of the data by the box plot (median as a yellow horizontal line, interquartile range as a box, and data range as whiskers). *ProEF1a:D2* with DMSO (n = 14) and β -estradiol (n = 19), and *PpABI3AiOX/ProEF1a:D2* with DMSO (n = 13) and β -estradiol (n = 13). The *P* value was determined by the Mann-Whitney *U*-test, n.s., non-significance ($P \ge 0.05$).



Supplemental Figure S6. Expression of $PpABI1A^{G333D}$ in protonemal tissues of $PpABI1A^{G333D}OX/ProEF1\alpha:D2$.

Constitutive expression of *PpABI1A^{G333D}* in *PpABI1A^{G333D}OX/ProEF1*α:D2 was confirmed by RT-PCR. The glutaraldehyde dehydrogenase gene (*GAPDH*) was used as an internal control. The number of PCR cycles was 28.

Gene Name (annotation in the v1.6; http://www.cosmoss.org/)	Sequence
$D_{\rm m} A D I 2 A (D_{\rm m} 1_{\rm s} 7, 115 V (-1))$	(F) 5'-AAAGAGGCGGAGGTTCACTTAC-3'
<i>PpABI3A</i> (Pp1s7_115V6.1)	(R) 5'-TTCTCGAGCAAGTACATCCGAC-3'
$D_{\rm m} A D I 2 D (D_{\rm m} 1_{\rm c} 1.72 + 1.42 {\rm W} 6.1)$	(F) 5'-AGAAGCCGAGGCGCACTTAC-3'
<i>PpABI3B</i> (Pp1s173_143V6.1)	(R) 5'-CGACTCTTGTTGTTCGGCCAG-3'
<i>PpABI3C</i> (Pp1s143 82V6.1)	(F) 5'-CTTCGCCCAAGTGATGTTGGC-3'
<i>PADISC</i> (P15145_62 V 0.1)	(R) 5'-ACTAAGGAAGGGCATGTGCTG-3'
<i>PpSnRK2A</i> (Pp1s218 59V6)	(F) 5'-CACGTTGCTTGATGGAAGCC-3'
<i>rpsnikza</i> (rp15218_5576)	(R) 5'-GGGTTGCGAGTGCAACAAGG-3'
<i>PpSnRK2B</i> (Pp1s240 91V6)	(F) 5'-AGGATCCCGATGACCCAAGG-3'
<i>1 psn/k2b</i> (1 p152+0_91 v 0)	(R) 5'-GCCTGCACTCCACGGAAATG-3'
<i>PpSnRK2C</i> (Pp1s113 72V6)	(F) 5'-ACCTAAGTCGACCGTGGGAAC-3'
<i>1 psmk</i> /2c (1p15115_/2v6)	(R) 5'-CAAAGTCACACCGCACGACC-3'
<i>PpSnRK2D</i> (Pp1s116 98V6)	(F) 5'-TGTTGCACTCGCAACCGAAG-3'
<i>PpsnKk2D</i> (Pp15110_98V0)	(R) 5'-GTACAAGGTCACACCGCACG-3'
<i>PpRFK</i> (Pp1s56 240V6)	(F) 5'-AGTGCTGGGTTTCATTCGAC-3'
<i>1 p</i> AFK (1 p1550_240 v 0)	(R) 5'-AGCCATGTTACATCCGGAAA-3'
<i>PpHIBCH</i> (Pp1s13 134V6)	(F) 5'-CATGATTGATCGCTTGTTGG-3'
<i>1 pinden</i> (1 p1815_134 v0)	(R) 5'-ACCGCGATCTTTATCACCTG-3'

Supplemental Table S1. Primer sequences in qPCR

(F): Forward primer

(R): Reverse primer