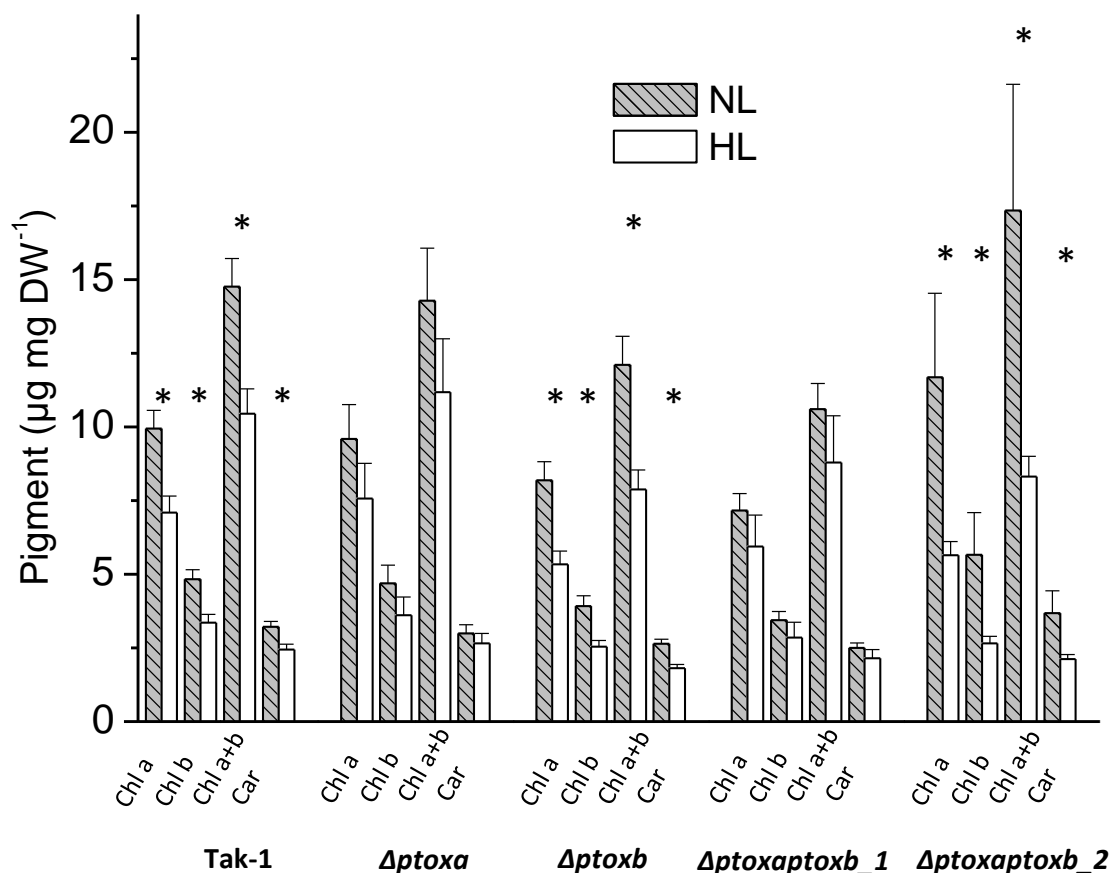


Fig. S2

Pigment composition in *Marchantia polymorpha* genotypes grown at 100 $\mu\text{mol quanta m}^{-2}\text{s}^{-1}$ (normal light, NL) and at 200 $\mu\text{mol quanta m}^{-2}\text{s}^{-1}$ (high light, HL)



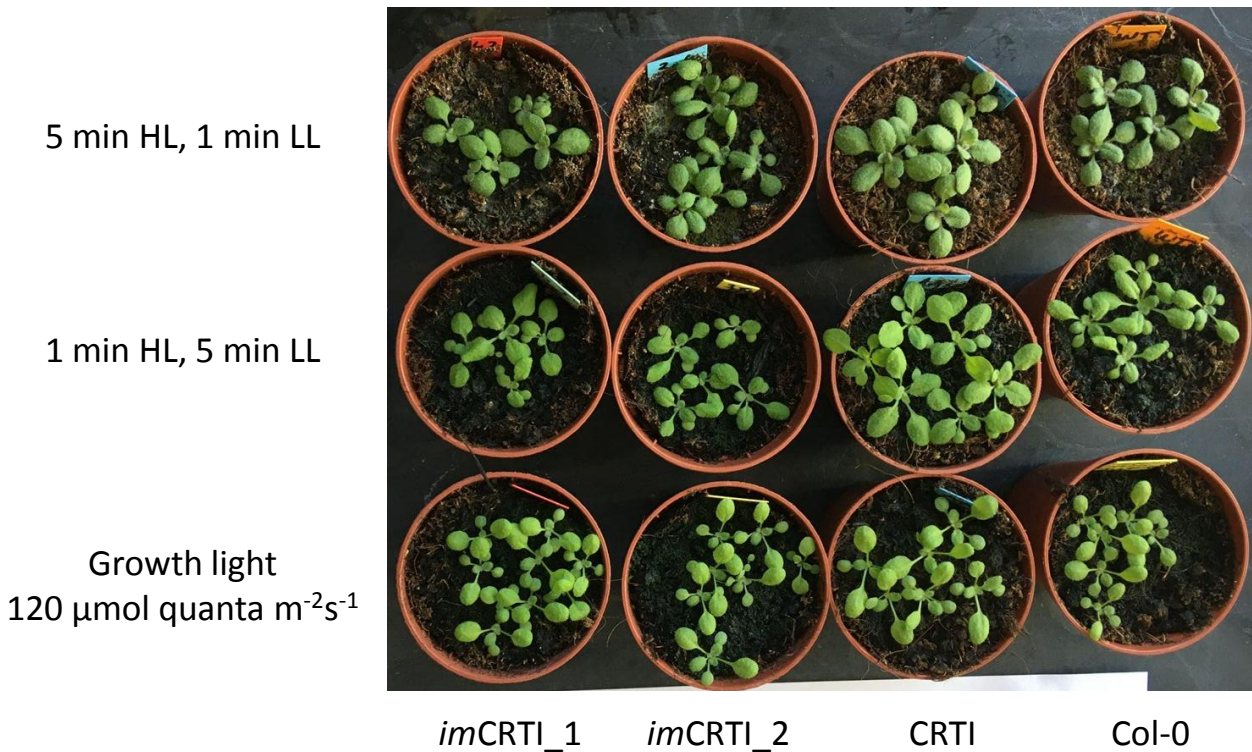
Pigments were extracted by incubation in 100% acetone. Mean values with standard error are given (n=3). Stars indicate significant differences, compared to the control condition, based on Student's t-test (* $p < 0.05$).

Pigment determination was done in accordance to Lichtenthaler (1987).
Ref.: Lichtenthaler H. (1987) Methods in Enzymology 148, pp 350-382

Fig. S1

Plants grown in different light regimes.

a: *Arabidopsis thaliana* (2 weeks old) in long day or for 1 week in fluctuating light condition (LL = 55 $\mu\text{mol quanta m}^{-2}\text{s}^{-1}$, HL = 850 $\mu\text{mol quanta m}^{-2}\text{s}^{-1}$)



b: *Marchantia polymorpha* (2 weeks old), grown for 1 week in fluctuating light (5 min 55 $\mu\text{mol quanta m}^{-2}\text{s}^{-1}$, 1 min 850 $\mu\text{mol quanta m}^{-2}\text{s}^{-1}$)

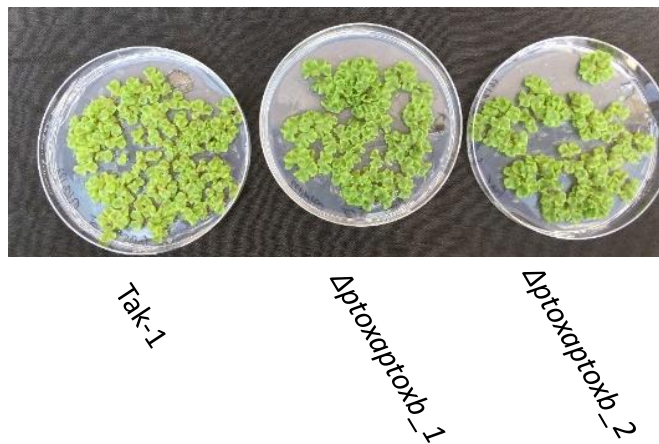


Fig. S4

Donor side limitation Y(ND) in fluctuating light condition (LL = 55 $\mu\text{mol quanta m}^{-2}\text{s}^{-1}$, HL = 850 $\mu\text{mol quanta m}^{-2}\text{s}^{-1}$) for all *Marchantia* genotypes. Additional data sets to Fig. 3a

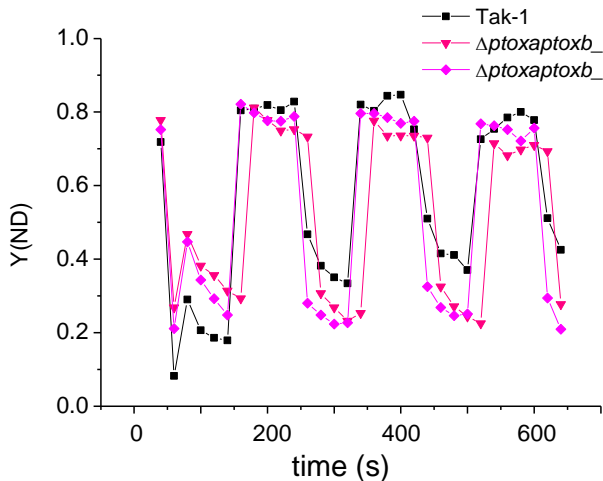
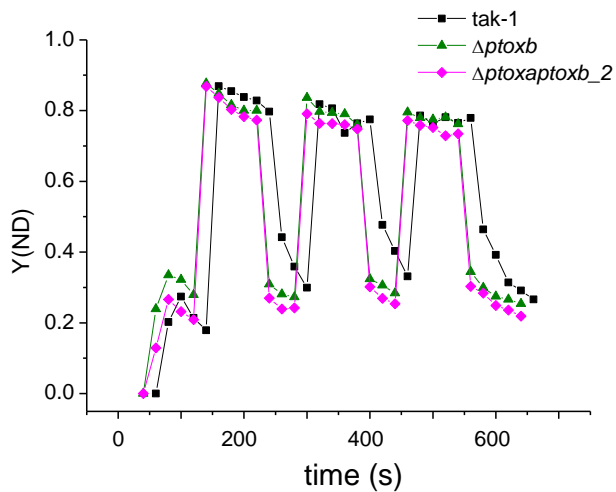
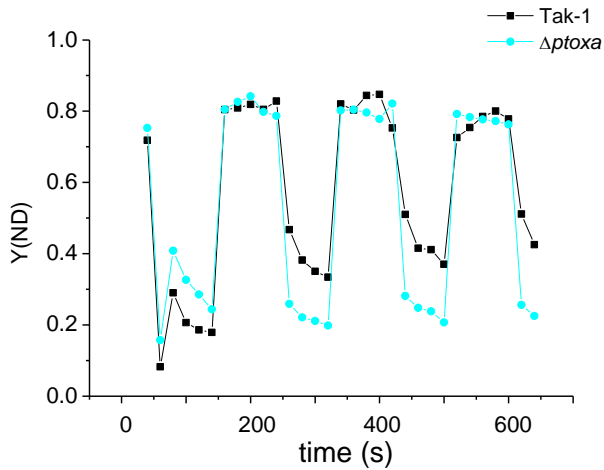


Fig. S5

Acceptor side limitation $Y(\text{NA})$ and non-photochemical quenching (NPQ) as a function of the light intensity for all *Marchantia* genotypes. Additional data to Fig. 3a

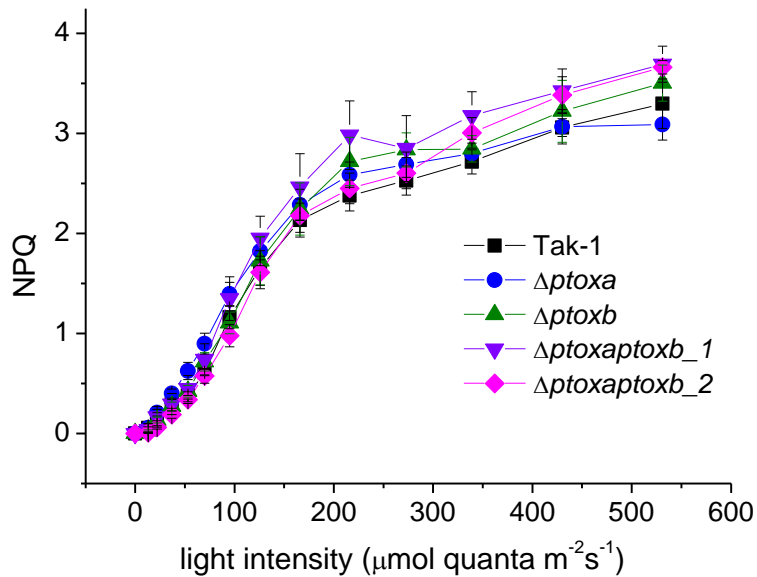
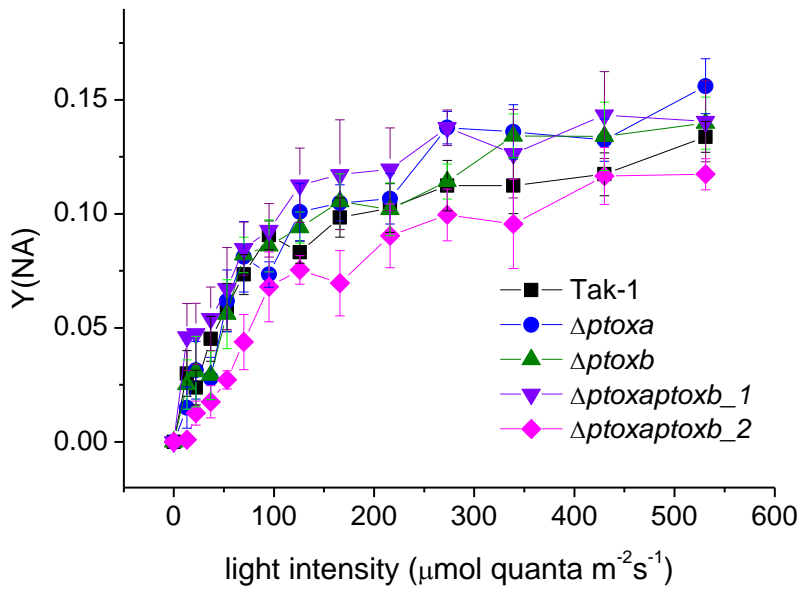
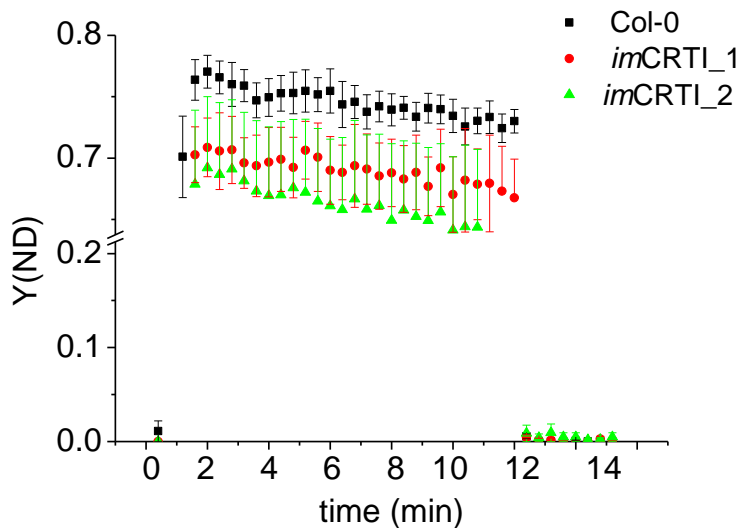


Fig. S6

Donor-side limitation ($Y(ND)$) at $1290 \mu\text{mol quanta m}^{-2}\text{s}^{-1}$

Arabidopsis thaliana



Marchantia polymorpha

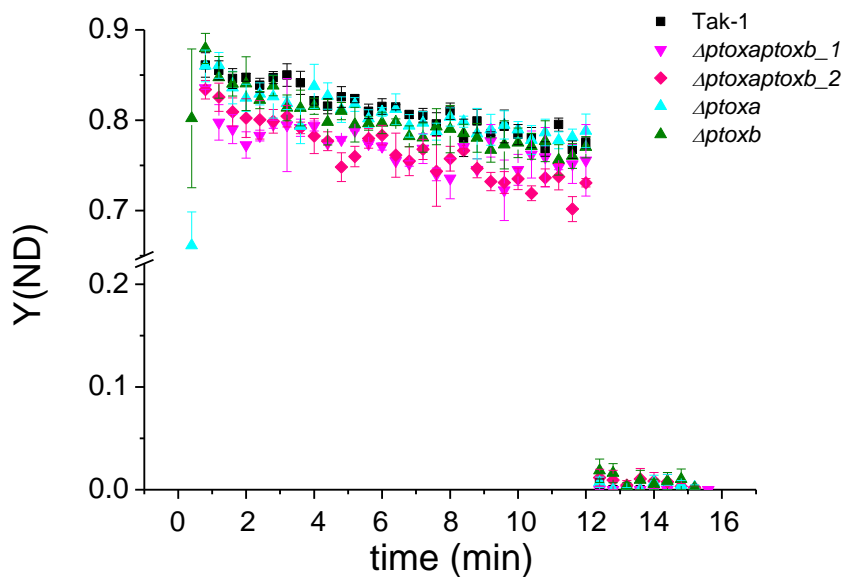
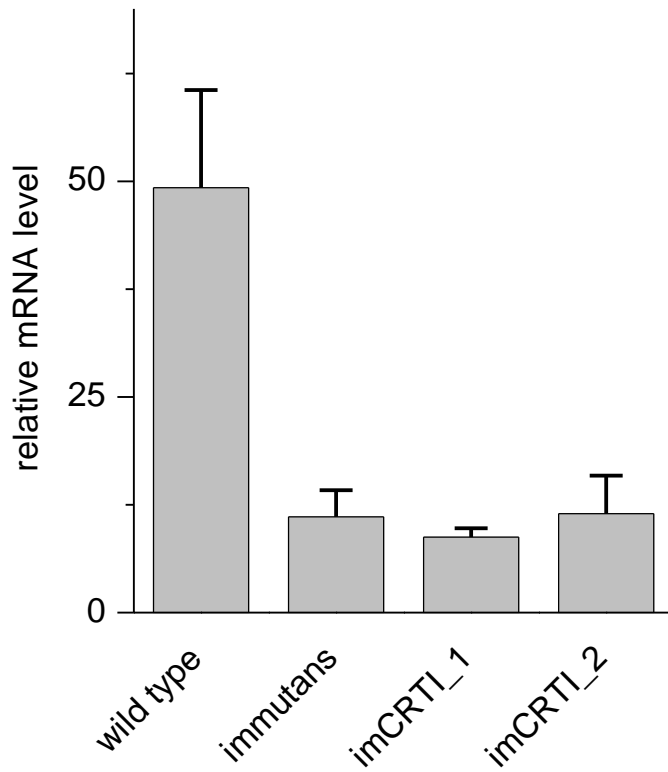


Fig. S7

mRNA expression levels of *ptox* in 2-week-old plants determined by RT-PCR. : *Arabidopsis* ecotype *Landsberg erecta*, *immutans*, and the two lines of crosses between CRTI and *im*.



Data are from two different RNA extraction. A third RNA extraction showed the same result but all expression levels were higher likely because of harvesting at a different time of the day. Mean values with standard error are shown (n=2).

Table S1:

Chlorophyll a/b and carotenoid to chlorophyll ratio in *A. thaliana* genotypes

Sample	Chla/b	Car/(chla+chlb)
Col-0	3.78±0,11	0.41±0,02
<i>imCRTI_1</i>	3,95±0,05	0,41±0,01
<i>imCRTI_2</i>	3,94±0,09	0,41±0,01

Pigments were extracted by incubation in 100% acetone. Mean values with standard deviation are given (n=4).

Pigment determination was done in according to Lichtenthaler (1987).

Ref.: Lichtenthaler H. (1987) Methods in Enzymology 148, pp 350-382

Table S2

Primer sequences for RT-qPCR

Primer names		Primer sequences
F-PTOX	F	5'-TGCAGTGTTCTGCTTCATCA-3'
R-PTOX	R	5'-GCACCGGATATCGCAGTAAA-3'
F-UBC21	F	5'-CAGTCTGTGTGTAGAGCTATCATAGCAT-3'
R-UBC21	R	5'-AGAAGATTCCCTGAGTCGCAGTT-3'
F-YLS8	F	5'-TCATTCGTTTCGGCCATGA-3'
R-YLS8	R	5'-CTCAGCAACAGACGCAAGCA-3'

Primers used for qPCR for checking PTOX mRNA expression levels in *Arabidopsis* ecotype *Landsberg erecta*, *immutans* and the two lines of crosses between CRTI and *im*. YLS8 and UBC21 corresponds to housekeeping genes.

Table S3

Primer sequences for *PTOX* constructs.

Primer names	Primer sequences	
F-PTOX1-Nco1	F	5'- GAT ATA CCA TGG CTT CTG GCC TGC GCA TTG -3'
R-PTOX1-Xho1	R	5'- GCC GGC CTC GAG TTA TAA TTC GCT GCC ATC -3'
F-PTOX2	F	5'- TTC AGG GCG CCA TGG GCA GTC CTG CCG CAT GCA TGC TTC -3'
R-PTOX2	R	5'- GTG GTG GTG CTC GAG TCA CGG CAG ACG GTC GGG-3'
F-PET-PTOX2 Del	F	5'-GCTACCGACTGCACGGCTGCAGCTCGAGAACAAGTGGAA GCACCTTGG-3'
R-PET-PTOX2 Del	R	5'- TGCAGCCGTGCGTCCGGTAGCAGCGGAACTGGGGAGGTG -3'

Primers used for vector constructions for PTOX expression in *E.coli* as described in the Methods section.