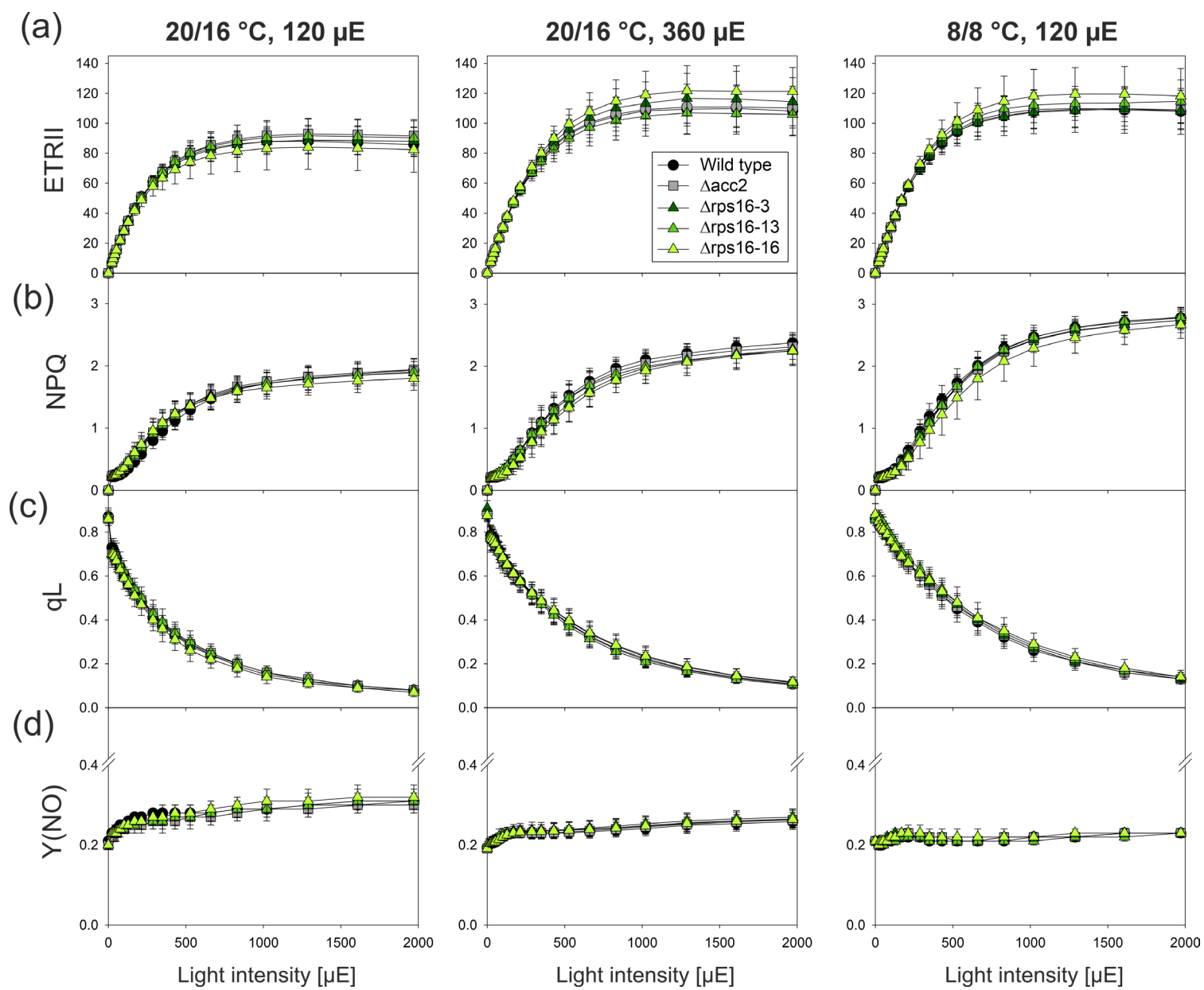


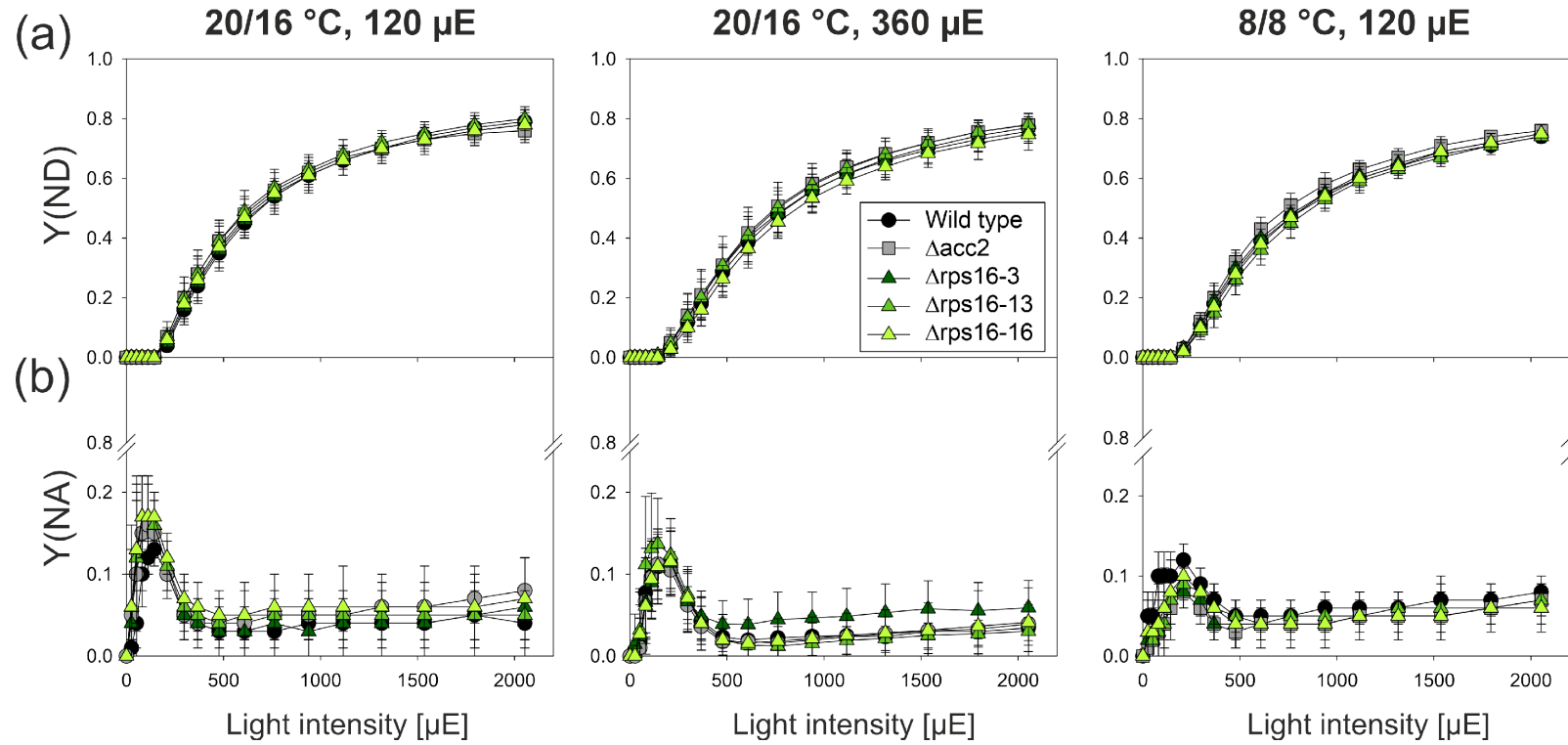
Supplementary Materials

Supplementary Table 1. List of oligonucleotides used in this work. Recognitions sites for the restriction enzyme BsaI that were introduced for cloning purposes are underlined.

| Primer name | Target | Sequence 5' → 3' |
|-------------|--|--|
| oJF721 | <i>psbK</i> | AACAG <u>GGTCTC</u> AACCTCAGCGGCTTGCCAAACAAAGGC |
| oJF722 | upstream of <i>rps16</i> start codon (5' UTR) | TGTT <u>GGTCTC</u> TTTATAACATTCCTCTAGTTTGTGTAATTGATTC |
| oJF723 | ZmPclpP, chimeric <i>aadA</i> in pJF1153 | AACAG <u>GGTCTC</u> AATAACTTCGTATAGCATACATTATACGAAGTTATTCTATGTATTAATAGAATCTATAGTATTC |
| oJF724 | EcTrmB, chimeric <i>aadA</i> in pJF1153 | TGTT <u>GGTCTC</u> TGACTATAACTTCGTATAATGTATGCTATACGAAGTTATGTAGAAACGCAAAAAGGCCAT |
| oJF725 | downstream of <i>rps16</i> stop codon (3' UTR) | AACAG <u>GGTCTC</u> CAAGTCTTACTAAAACGAAATGAAATTAATG |
| oJF726 | <i>trnK</i> intron | TGTT <u>GGTCTC</u> TTGTTTATTTATTCACTTGACCCAAATTGG |
| oJF1034 | <i>matK</i> | GGTTCACATCCTTAGTGGGA |
| oJF1035 | <i>trnK</i> intron | AATCCGGTTAGCAGTCTACC |
| oSR24 | <i>rps16-e1</i> | AAAACGATGTGGTAGAAAGC |
| oSR25 | <i>rps16-e2</i> | TTCATTCCGTAAAAATCCCA |



Supplementary Figure 1. Light response curves of chlorophyll-*a* fluorescence parameters of *Arabidopsis* wild type (black), the $\Delta acc2$ recipient line (grey) and three independent $\Delta rps16$ mutants (three different shades of green). Plants were grown under standard conditions (20°C day temperature and 120 $\mu\text{mol photons m}^{-2} \text{s}^{-1}$ light intensity, left column), high-light conditions (20°C day temperature and 360 $\mu\text{mol photons m}^{-2} \text{s}^{-1}$ light intensity, middle column) and chilling conditions (8°C day temperature and 120 $\mu\text{mol photons m}^{-2} \text{s}^{-1}$ light intensity, right column; see Methods). μE : $\mu\text{mol photons m}^{-2} \text{s}^{-1}$. **(a)** Light response curves of linear electron transport (ETR_{II}; in $\mu\text{mol electrons m}^{-2} \text{s}^{-1}$). **(b)** Light response curves of photoprotective non-photochemical quenching (NPQ), a measure for the regulated dissipation of excess excitation energy as heat. **(c)** Light response curves of qL, a measure for the redox state of the PSII acceptor side. **(d)** Light response curves of Y(NO), a measure for the non-regulated dissipation of excitation energy by PSII. Shown are average values with standard deviation. The number of independent biological replicates is $n = 18$, except for the wild type under chilling conditions and the $\Delta acc2$ recipient line under high-light conditions ($n = 21$).



Supplementary Figure 2. Light response curves of functional parameters of PSI of *Arabidopsis* wild type (black), the $\Delta acc2$ recipient line (grey) and three independent $\Delta rps16$ mutants (three different shades of green). Plants were grown under standard conditions (20°C day temperature and 120 $\mu\text{mol photons m}^{-2} \text{s}^{-1}$ light intensity, left column), high-light conditions (20°C day temperature and 360 $\mu\text{mol photons m}^{-2} \text{s}^{-1}$ light intensity, middle column) and chilling conditions (8°C day temperature and 120 $\mu\text{mol photons m}^{-2} \text{s}^{-1}$ light intensity, right column; see Methods). μE : $\mu\text{mol photons m}^{-2} \text{s}^{-1}$. **(a)** Light response curves of the donor-side limitation of PSI, Y(ND). **(b)** Light response curves of the acceptor-side limitation of

PSI, Y(NA). Shown are average values with standard deviation. The number of independent biological replicates is $n = 18$, except for the wild type under chilling conditions and the $\Delta acc2$ recipient line under high-light conditions ($n = 21$).

Supplementary Dataset 1. Data from array-based ribosome profiling experiments. Total RNA and ribosome footprints derived from $\Delta acc2$ recipient (rec) plants were labeled with Cy5, and the signals were detected at 635 nm. RNA and ribosome footprints derived from $\Delta rps16$ plants were labeled with Cy3, and the signals were detected at 532 nm. For details, see Methods section.