

Supporting Information Tables S1–S3

Table S1 List of primers used in this study.

| Gene locus | Clone | Primer | Sequence |
|--|---------------|-------------------|---|
| pet28_ZmpTAC12 | | | |
| <i>ZmpTAC12</i> | ZM_BFb0227G12 | ZmpTAC12_NdeI | 5'-GCCACATATGCCAGCTACTTCGAC-3' |
| | | ZmpTAC12_Sall_k | 5'-GGATCGTCGACCTAATTAATTGTTG-3' |
| pMAL_ZmpTAC12 | | | |
| <i>ZmpTAC12</i> | ZM_BFb0227G12 | ZmpTAC12_BglII | 5'-GACCCGAGATCTATAGAACC GCCAC-3' |
| | | ZmpTAC12_PstI | 5'-TGTCCTGCAGTTACTCGGTTCC-3' |
| pEnter221_Zm12-14 | | | |
| <i>ZmpTAC12</i> | ZM_BFb0227G12 | Zmptac12-f-TOPO_1 | 5'-GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAT GGCGTCTGCTACAACC-3' |
| | | Zmptac12-r-TOPO_2 | 5'-GGGGACCACCTTGTACAAGAAAGCTGGGTATGA CTCGGTTTCCTCAAAGTC-3' |
| run on, slot blots and Northern | | | |
| <u>oligo probes</u> | | | |
| <i>psaAB</i> | | ZmpsaAB-150_r | 5'-CTATCTACCGTCCTTCTATTTTTTTTTTTAGTTA TTCCTGGAGCAATTA-3' |
| <i>psaAB</i> | | ZmpsaAB-190_r | 5'-GGAGCAATTATATATTGAAGTCAATCCGAGGC AAGTGTTCGGATCTATTA-3' |
| <i>psaAB</i> | | ZmpsaAB-231_r | 5'-GATCTATTATGACATAAAGGATTAGGTGCCTAA CGGACATTGGTTATTCTG-3' |
| <i>psbA</i> | | ZmpsbA ORF1_r | 5'-TGTTGCATATTCAGCTCCTGTTGCAGCTGC-3' |
| <i>psbE</i> | | ZmpsbE ORF2_r | 5'-GCATTACTATACCTTCCCTATTCATTGCGG-3' |
| <i>trnA-U</i> | | ZmtrnA_UGC_r | 5'-GGAGATAAGCGGACTCGAACCCTGACATC-3' |
| <i>trnG-UCC</i> | | ZmtrnG_UCC_r | 5'-GAACCCGCATCGTTAGCTTGAAGGCTAGG-3' |
| <i>trnI-GAU</i> | | ZmtrnI_GAU_r | 5'-GCCATCCTGGACTTGAACCAGAGACCTCGC-3' |
| <i>trnV-UAC</i> | | ZmtrnV_UAC_r | 5'-GAGTTGCTCTACCGAACTGAGCTATAGCCC-3' |
| <i>trnE-UUC</i> | | ZmtrnE_UUC_r | 5'-GAGAGATGTCCTGAACCACTAGACGATGGG-3' |
| <u>PCR probes</u> | | | |
| <i>ptac12</i> | | Zmptac12_for2 | 5'-ACAACCTCCTTCCACGTGAG-3'; |
| | | Zmptac12_r3 | 5'-AATAGGCGCCACGGGTTGTA-3' |
| <i>ptac12</i> | ZM_BFb0227G12 | Zmptac12_f | 5'-CGTTCATTGATCCAGCAAAGG-3'; |
| | | Zmptac12_r | 5'-ATTCCCCAGCAGTTTGGTGTT-3' |
| <i>ptac12</i> | ZM_BFb0227G12 | Zmptac12_f2 | 5'-ATGGCGTCTGCTACAACC-3'; |
| | | Zmptac12_r2 | 5'-CGGTTTCCTCAAAGTCCATAAG-3' |
| <i>atpB</i> | | ZmatpBE_f | 5'-TTTGATAGTCAAGAGTCGAGA-3'; |
| | | ZmatpBE_r | 5'-TTTCCTTACAGTCCGTTTC-3' |
| <i>ndhB</i> | | ZmndhB_f | 5'-CTTCAGCTTTAGCCACGCGAA-3'; |
| | | ZmndhB_r | 5'-AATTGCAAGAATGGGGTTCA-3' |
| <i>petB</i> | | ZmpetB_f | 5'-GTCTTGAGATTCAGGCAATTGCAGATG-3'; |
| | | ZmpetB_r | 5'-GCAGTAAGCAGAGGTAGTACAAAGGTATGT-3' |
| <i>petG/psaJ</i> | | ZmpetG_f | 5'-TCCCCTCGAACAATCGAAATGATTGA-3'; |
| | | ZmpsaJ_r | 5'-GGGAATGACAAAGCATCTGGGA-3' |
| <i>psaAB</i> | | ZmpsaAB_f | 5'-GGGTTTTACAGTTTTGGCTT-3'; |
| | | ZmpsaAB_r | 5'-CCCAAACATCCGACTGCATTT-3' |
| <i>psbA</i> | | ZmpsbA_f | 5'-CTTCTGCGGCGATAGGGTTGC-3'; |
| | | ZmpsbA_r | 5'-CATTTCAGTGGTTTCCCTGA-3' |
| <i>psbB</i> | | ZmpsbB_f | 5'-GCGGACGTTCTTTTAGAAG-3'; |
| | | ZmpsbB_r | 5'-GAGCGCCATGCCAAATGTGT-3' |
| <i>psbE</i> | | ZmpsbE_f | 5'-GTCTGGAAGCACGGGAGAACG-3'; |
| | | ZmpsbE_r | 5'-TTCATCTAGTTGTTCTAAAGAA-3' |
| <i>rpl2</i> | | Zmrpl2_f | 5'-CCGTAGACAGGCAAGTGAAATC-3'; |
| | | Zmrpl2_r | 5'-TATGTATGGCCGTGCCTAAG-3' |

| | | |
|---------------------|-------------|---------------------------------------|
| <i>rpoB</i> | ZmrpoB_f | 5'-GGAATGGAAATGAGGGAATGTCCAC-3'; |
| | ZmrpoB_r | 5'-GACTCAATCCTCTTCTTCTCCTTAGCATT-3' |
| <i>rps2</i> | Zmrps2_f | 5'-GAAAGAGATGATAGAAGCGGGAGTTC-3'; |
| | Zmrps2_r | 5'-GAATTGAAGTCATAGTGTTCATCGTTGGCAG-3' |
| <i>rps12</i> exon | Zmrps12ex_f | 5'-GCCCTTGTTGACGATTCTTTAC-3'; |
| | Zmrps12ex_r | 5'-GACTTTTCCACTATCAACCCC-3' |
| <i>rps12</i> intron | Zmrps12in_f | 5'-GGGTGGATTCGAAAAGATAGG-3'; |
| | Zmrps12in_r | 5'-GCCATGTGAATCGCTAGAAAC-3' |
| <i>rps14</i> | Zmrps14_f | 5'-TCATTTGATTCTCGATCCTC-3'; |
| | Zmrps14_r | 5'-GTATTTTATCCTTACCAACTG-3' |
| <i>rrn16</i> | Zmrrn16_f | 5'-GGAGAGTTCGATCCTG-3'; |
| | Zmrrn16_r | 5'-GCTTTACGCCCAATCATTCC-3' |

RNA binding assays

| | | |
|--------------|-------------|--|
| T7 promoter | T7 promoter | 5'-GAAACTAATACGACTCACTATAGG-3' |
| <i>psaAB</i> | ZmpsAB-150 | 5'-CTATCTACCGTCCTTCTATTTTTTTTTTTAGTTATTCAC TGGAGCAATTACCTATAGTGAGTCGTATTAGTTTC-3' |
| <i>psaAB</i> | ZmpsAB-190 | 5'-GGAGCAATTATATATTGAAGTCAATCCGAGGCAAGTG TTCGGATCTATTACCTATAGTGAGTCGTATTAGTTTC-3' |
| <i>psaAB</i> | ZmpsAB-231 | 5'-GATCTATTATGACATAAGGATTAGGTGCCTAACGGAC ATTGGTTATTCTGCCTATAGTGAGTCGTATTAGTTTC-3' |

DNA binding assays

| | | |
|--------------|------------|---|
| <i>psaAB</i> | ZmpsAB-150 | 5'-TAATTGCTCCAGTGAATAACTAAAAAAAAAATAGAAG GACGGTAGATAG-3' |
| <i>psaAB</i> | ZmpsAB-190 | 5'-TAATAGATCCGAACACTTGCCCTCGGATTGACTTCAATA TATAATTGCTCC-3' |
| <i>psaAB</i> | ZmpsAB-231 | 5'-CAGAATAACCAATGTCCGTTAGGCACCTAATCCTTATG TCATAATAGATC-3' |

Table S2 Liquid chromatography-electrospray ionization-tandem mass spectrometry (LC-ESI-MS/MS) confirmed the identity the ZmpTAC12 protein.

Protein samples (PEP-complex preparation by a two-step chromatographic method) were separated by 10% SDS-PAGE and stained with Colloidal Blue (Staining Kit from Invitrogen GmbH). Bands were excised and the proteins *in gel* tryptic digested. Peptides were eluted and analyzed by LC-ESI-MS/MS according to Schmidt et al. 2006. For the data analysis, the Proteome Discoverer vs. 1.4 (Thermo Fisher Scientific Inc.) along with a database containing only the full length ZmpTAC amino acid sequence was used. The cut off XCorr criteria along with the false discovery rate of $\leq 1\%$ were set according to Mann et al., 2014. The two N-terminal peptides that were only identified in the large ZmpTAC12 isoform (~75 kDa band) are highlighted in red.

^a Peptide position in the ZmpTAC12 sequence

^b Cross-correlation values

^c Peptide charge

^d Peptide identified in independent preparations (I and II)

| Protein ID | Position ^a | Sequence | XCorr ^b | Charge ^c | Sample ^d |
|------------------------|--------------------------|---------------------------|--------------------|---------------------|---------------------|
| ZmpTAC12-S ~ 65 kDa | 227-236 | TSEELWWHWR | 2,73 | 2 | II |
| | 251-261 | RRPDVDTVFAK | 3,08 | 3 | I |
| | | RPDVDTVFAK | 3,25 | 3 | II |
| | 252-261 | RPDVDTVFAK | 3,30 | 2 | I |
| | | RPDVDTVFAK | 3,28 | 3 | II |
| | 303-320 | LEEIGPIAYYSEWVEAYK | 3,80 | 2 | II |
| | 332-346 | HFEETGEDENVQLIK | 5,50 | 2 | I |
| | | HFEETGEDENVQLIK | 5,68 | 2 | II |
| | 442-455 | EDVNQDITYPEAK | 3,28 | 2 | I |
| | | EDVNQDITYPEAK | 3,05 | 3 | II |
| 507-515 | VNQNWSALK | 2,68 | 2 | I | |
| | VNQNWSALK | 2,70 | 2 | II | |
| ZmpTAC12-L ~ 75 kDa | 62-71 | DDSLHFDPSK | 3,08 | 2 | I |
| | | DDSLHFDPSK | 2,67 | 2 | II |
| | 72-95 | IEPPYSSYFDSTSGQLEPASGAR | 2,84 | 2 | II |
| | 227-236 | TSEELWWHWR | 3,04 | 2 | II |
| | 239-247 | SQEEEMWSR | 2,60 | 2 | II |
| | 251-261 | RRPDVDTVFAK | 3,40 | 3 | I |
| | | RRPDVDTVFAK | 3,40 | 3 | II |
| | 252-261 | RPDVDTVFAK | 3,34 | 2 | II |
| | | RPDVDTVFAK | 3,34 | 2 | II |
| | 303-320 | LEEIGPIAYYSEWVEAYK | 3,19 | 2 | II |
| | 332-346 | HFEETGEDENVQLIK | 5,82 | 2 | I |
| | | HFEETGEDENVQLIK | 5,60 | 2 | II |
| | 347-357 | MFQHQTAGEYR | 3,08 | 3 | I |
| | 382-406 | QIWGGDPVYPTINYVQDPDEVIDYR | 4,09 | 2 | II |
| 442-455 | EDVNQDITYPEAK | 3,05 | 2 | I | |
| | EDVNQDITYPEAK | 3,69 | 2 | II | |
| 483-506 | AAAQPSLEDE EDDRDDVAEVEEK | 3,09 | 3 | I | |
| 507-515 | VNQNWSALK | 2,86 | 2 | II | |

Mann M, Hoppenz P, Jakob T, Weisheit W, Mittag M, Wilhelm C, Goss R. 2014. Unusual features of the high light acclimation of *Chromera velia*. *Photosynth Res* 122:159-69.

Schmidt M, Gessner G, Luff M, Heiland I, Wagner V, Kaminski M, Geimer S, Eitzinger

N, Reissenweber T, Voytsekh O, Fiedler M, Mittag M, Kreimer G. 2006. Proteomic analysis of the eyespot of *Chlamydomonas reinhardtii* provides novel insights into its components and tactic movements. *Plant Cell* 18: 1908-1930.

Table S3 Top-ranking fragments in ZmpTAC12 RIP-chip assays.^a Fragments on the array are numbered according to chromosomal position.^b Median \log_2 (F635/F532) normalized across the experimental (anti-ptac12-a and anti-pTAC12-b) and control (anti-psaAB) immunoprecipitations. Replicate experiments constitute a total of *N* replicate spots above background.

| anti-pTAC12-a IP | | | | anti-pTAC12-b IP | | | |
|----------------------|----------------|---|----------------|----------------------|---------------|---|----------------|
| Frag. # ^a | Fragment name | Median \log_2 ratio ^b (ZmpTAC12-PsaAB) | N ^b | Frag. # ^a | Fragment name | Median \log_2 ratio ^b (ZmpTAC12-PsaAB) | N ^b |
| 2 | psbA2 | 7,14 | 6 | 1 | psbA1 | 6,52 | 6 |
| 1 | psbA1 | 7,14 | 6 | 2 | psbA2 | 6,45 | 6 |
| 3 | psbA3 | 6,16 | 6 | 71 | rps14-1 | 6,08 | 6 |
| 249 | IR/psbA | 5,97 | 6 | 120 | psbF/E | 5,96 | 6 |
| 80 | ycf3-3 | 5,81 | 6 | 72 | rps14/psaB | 5,89 | 6 |
| 192 | rps12-3 | 5,80 | 5 | 77 | psaA-2 | 5,44 | 5 |
| 120 | psbF/E | 5,69 | 6 | 65 | atpF3 | 5,38 | 6 |
| 77 | psaA-2 | 5,56 | 6 | 249 | IR/psbA | 5,27 | 6 |
| 119 | psbJ/L/F/E | 5,32 | 6 | 3 | psbA3 | 5,26 | 6 |
| 136 | psbB-1 | 5,22 | 6 | 119 | psbJ/L/F/E | 5,23 | 6 |
| 79 | ycf3-2 | 5,18 | 6 | 80 | ycf3-3 | 5,22 | 4 |
| 65 | atpF3 | 5,17 | 4 | 189 | ndhB/rps7 | 5,05 | 3 |
| 134 | clpP/psbB | 5,15 | 6 | 132 | rps12int1-1 | 4,77 | 4 |
| 72 | rps14/psaB | 5,02 | 6 | 79 | ycf3-2 | 4,49 | 4 |
| 138 | psbB/psbT/psbN | 4,98 | 5 | 195 | rps125' | 4,41 | 6 |
| 135 | clpP | 4,98 | 3 | 122 | petL | 4,39 | 6 |
| 195 | rps125' | 4,92 | 6 | 67 | atpF/atpA | 4,31 | 6 |
| 122 | petL | 4,91 | 5 | 13 | psbK/psbI | 4,17 | 6 |
| 232 | ndhD-2 | 4,87 | 2 | 58 | atpI/atpH | 4,12 | 6 |
| 67 | atpF/atpA | 4,84 | 6 | 97 | ndhK/ndhC | 4,09 | 6 |
| 71 | rps14-1 | 4,76 | 6 | 16 | psbD1 | 4,07 | 6 |
| 169 | rpl2int | 4,75 | 5 | 131 | rpl20 | 4,06 | 5 |
| 137 | psbB-2 | 4,69 | 4 | 136 | psbB-1 | 4,02 | 6 |
| 16 | psbD1 | 4,63 | 6 | 137 | psbB-2 | 3,99 | 6 |
| 75 | psaB/psaA | 4,60 | 5 | 75 | psaB/psaA | 3,97 | 5 |
| 76 | psaA-1 | 4,60 | 5 | 235 | psaC-2 | 3,97 | 6 |
| 235 | psaC-2 | 4,58 | 6 | 81 | ycf3-4 | 3,89 | 3 |
| 58 | atpI/atpH | 4,56 | 3 | 104 | atpB-2 | 3,86 | 6 |
| 191 | rps12-1 | 4,52 | 5 | 60 | atpH2 | 3,86 | 6 |
| 13 | psbK/psbI | 4,44 | 6 | 133 | rps12exon1 | 3,84 | 6 |
| 168 | rpl2-1 | 4,44 | 6 | 192 | rps12-3 | 3,83 | 4 |
| 194 | rps12exon2 | 4,39 | 6 | 232 | ndhD-2 | 3,77 | 3 |
| 193 | rps12int2-1 | 4,37 | 5 | 112 | ycf4-1 | 3,72 | 5 |
| 97 | ndhK/ndhC | 4,32 | 6 | 134 | clpP/psbB | 3,71 | 5 |
| 133 | rps12exon1 | 4,24 | 6 | 36 | psbM1 | 3,71 | 6 |
| 81 | ycf3-4 | 4,22 | 5 | 63 | atpFintron2 | 3,65 | 5 |

| | | | | | | | |
|-----|-----------------|------|---|-----|-----------------|------|---|
| 230 | ycf5-2 | 4,21 | 3 | 191 | rps12-1 | 3,62 | 4 |
| 189 | ndhB/rps7 | 4,21 | 6 | 244 | ndhAint | 3,59 | 5 |
| 112 | ycf4-1 | 4,20 | 4 | 78 | ycf3-1 | 3,55 | 3 |
| 82 | ycf3/trnS | 4,16 | 4 | 68 | atpA3' | 3,53 | 5 |
| 8 | rps16 intron | 4,13 | 4 | 106 | rbcL-1 | 3,52 | 6 |
| 132 | rps12int1-1 | 4,12 | 4 | 61 | atpF1 | 3,51 | 6 |
| 104 | atpB-2 | 4,12 | 6 | 188 | ndhB5' | 3,50 | 2 |
| 131 | rpl20 | 4,07 | 4 | 64 | atpH/atpF | 3,50 | 5 |
| 68 | atpA3' | 4,06 | 5 | 74 | psaB-2 | 3,48 | 6 |
| 114 | cemA | 4,02 | 5 | 103 | atpE/B | 3,47 | 6 |
| 113 | ycf4-2 | 4,02 | 2 | 82 | ycf3/trnS | 3,45 | 6 |
| 170 | rpl2-2 | 4,01 | 4 | 66 | atpA1 | 3,39 | 6 |
| 74 | psaB-2 | 4,01 | 6 | 233 | ndhD-3 | 3,38 | 4 |
| 106 | rbcL-1 | 3,99 | 6 | 95 | ndhJ/ndhK | 3,37 | 5 |
| 103 | atpE/B | 3,97 | 4 | 135 | clpP | 3,37 | 6 |
| 59 | atpH1 | 3,96 | 6 | 59 | atpH1 | 3,35 | 6 |
| 245 | ndhA-2 | 3,93 | 4 | 126 | psaJ-2 | 3,34 | 6 |
| 60 | atpH2 | 3,92 | 6 | 185 | ndhB-2 | 3,31 | 3 |
| 17 | psbD2 | 3,91 | 6 | 123 | petE | 3,28 | 6 |
| 57 | atpI-2 | 3,86 | 4 | 96 | ndhK | 3,27 | 4 |
| 123 | petE | 3,85 | 6 | 18 | psbC/trnS | 3,25 | 6 |
| 40 | petN3 | 3,84 | 5 | 116 | petA-1 | 3,25 | 5 |
| 107 | rbcL-2 | 3,83 | 6 | 230 | ycf5-2 | 3,22 | 6 |
| 149 | petDint-1 | 3,82 | 5 | 190 | rps7-1 | 3,19 | 6 |
| 73 | psaB-1 | 3,81 | 4 | 187 | ndhBint-2 | 3,18 | 3 |
| 78 | ycf3-1 | 3,81 | 6 | 56 | atpI-1 | 3,15 | 6 |
| 188 | ndhB5' | 3,78 | 2 | 114 | cemA | 3,15 | 5 |
| 61 | atpF1 | 3,77 | 5 | 156 | rpl36/infA/rps8 | 3,13 | 4 |
| 244 | ndhAint | 3,75 | 2 | 57 | atpI-2 | 3,10 | 5 |
| 127 | psaJ/rpl33 | 3,73 | 2 | 138 | psbB/psbT/psbN | 3,10 | 6 |
| 213 | rrn23-4 | 3,73 | 6 | 73 | psaB-1 | 3,09 | 5 |
| 95 | ndhJ/ndhK | 3,71 | 4 | 186 | ndhBintron | 3,06 | 4 |
| 66 | atpA1 | 3,71 | 4 | 17 | psbD2 | 3,06 | 6 |
| 53 | rpoC2/rps2 | 3,69 | 2 | 127 | psaJ/rpl33 | 3,05 | 6 |
| 98 | trnV-UAC-1 | 3,68 | 5 | 12 | trnQ/psbK | 3,01 | 6 |
| 121 | psbE5' | 3,60 | 6 | 121 | psbE5' | 3,00 | 6 |
| 214 | rrn4.5 | 3,54 | 6 | 113 | ycf4-2 | 3,00 | 3 |
| 12 | trnQ/psbK | 3,53 | 6 | 183 | ndhB3' | 2,98 | 4 |
| 156 | rpl36/infA/rps8 | 3,52 | 4 | 170 | rpl2-2 | 2,97 | 5 |
| 6 | trnkintron | 3,51 | 6 | 54 | rps2-1 | 2,96 | 6 |
| 18 | psbC/trnS | 3,48 | 5 | 108 | rbcL-3 | 2,92 | 6 |
| 64 | atpH/atpF | 3,47 | 6 | 107 | rbcL-2 | 2,91 | 6 |
| 183 | ndhB3' | 3,47 | 6 | 168 | rpl2-1 | 2,87 | 6 |
| 56 | atpI-1 | 3,47 | 6 | 85 | rps4 | 2,84 | 6 |
| 116 | petA-1 | 3,46 | 3 | 245 | ndhA-2 | 2,82 | 6 |
| 39 | petN2 | 3,44 | 6 | 169 | rpl2int | 2,76 | 6 |
| 100 | trnV-UAC-3 | 3,43 | 6 | 94 | ndhJ-1 | 2,73 | 6 |
| 63 | atpFintron2 | 3,41 | 4 | 166 | rps19/orf75 | 2,71 | 6 |
| 140 | psbH-1 | 3,40 | 6 | 160 | rpl14 | 2,70 | 3 |
| 108 | rbcL-3 | 3,39 | 6 | 5 | matK | 2,69 | 6 |
| 150 | petD-3 | 3,37 | 6 | 164 | rps3 | 2,69 | 2 |
| 234 | psaC-1 | 3,36 | 5 | 213 | rrn23-4 | 2,67 | 6 |
| 212 | rrn23-3 | 3,32 | 5 | 128 | rpl33 | 2,65 | 5 |

| | | | | | | | |
|-----|----------------|------|---|-----|--------------|------|---|
| 166 | rps19/orf75 | 3,32 | 5 | 105 | atpB5' | 2,61 | 5 |
| 54 | rps2-1 | 3,32 | 4 | 246 | ndhA-3 | 2,57 | 2 |
| 221 | ORF63//rps15 | 3,31 | 4 | 163 | rpl16-int | 2,57 | 3 |
| 94 | ndhJ-1 | 3,30 | 5 | 172 | rpl23 | 2,55 | 6 |
| 247 | ndhA/ndhH | 3,28 | 4 | 130 | rps18/rpl20 | 2,53 | 2 |
| 163 | rpl16-int | 3,26 | 2 | 243 | ndhA-1 | 2,50 | 2 |
| 118 | psbJ3' | 3,25 | 6 | 118 | psbJ3' | 2,50 | 4 |
| 203 | trnI-GAU-1 | 3,24 | 6 | 248 | ndhH | 2,49 | 3 |
| 148 | petB/D2 | 3,24 | 6 | 53 | rpoC2/rps2 | 2,47 | 5 |
| 126 | psaJ-2 | 3,24 | 6 | 8 | rps16 intron | 2,46 | 6 |
| 99 | trnV-UAC-2 | 3,22 | 6 | 247 | ndhA/ndhH | 2,45 | 2 |
| 161 | rpl16-1 | 3,19 | 5 | 109 | psaI5' | 2,41 | 6 |
| 171 | rpl2/rpl23 | 3,15 | 5 | 234 | psaC-1 | 2,40 | 6 |
| 220 | ORF63 | 3,14 | 6 | 165 | rps3/rpl22 | 2,39 | 2 |
| 69 | trnR | 3,14 | 6 | 157 | infA | 2,33 | 6 |
| 202 | rrn16/trnI | 3,14 | 6 | 171 | rpl2/rpl23 | 2,33 | 5 |
| 102 | atpE-1 | 3,12 | 6 | 6 | trnkintron | 2,30 | 5 |
| 139 | psbB-psbH | 3,12 | 3 | 102 | atpE-1 | 2,30 | 6 |
| 144 | petBintron | 3,10 | 4 | 40 | petN3 | 2,30 | 5 |
| 185 | ndhB-2 | 3,06 | 2 | 194 | rps12exon2 | 2,29 | 5 |
| 109 | psaI5' | 3,06 | 6 | 161 | rpl16-1 | 2,27 | 6 |
| 190 | rps7-1 | 3,04 | 5 | 176 | orf241 | 2,27 | 2 |
| 164 | rps3 | 3,02 | 3 | 212 | rrn23-3 | 2,25 | 6 |
| 205 | trnlint | 3,01 | 6 | 9 | rps16-1 | 2,24 | 5 |
| 125 | psaJ-1 | 3,01 | 5 | 70 | trnR/rps14 | 2,24 | 6 |
| 36 | psbM1 | 3,00 | 6 | 220 | ORF63 | 2,24 | 4 |
| 229 | ycf5-1 | 2,98 | 6 | 214 | rrn4.5 | 2,22 | 6 |
| 110 | psaI-1 | 2,98 | 4 | 180 | orf99/173 | 2,21 | 3 |
| 152 | rpoA5' | 2,98 | 4 | 219 | trnN-GUU | 2,16 | 6 |
| 141 | psbH-2 | 2,98 | 4 | 125 | psaJ-1 | 2,12 | 6 |
| 5 | matK | 2,96 | 5 | 229 | ycf5-1 | 2,11 | 6 |
| 130 | rps18/rpl20 | 2,95 | 5 | 140 | psbH-1 | 2,09 | 6 |
| 44 | rpoB1 | 2,94 | 4 | 7 | rps16-2 | 2,09 | 6 |
| 181 | orf173-3' | 2,94 | 3 | 39 | petN2 | 2,06 | 6 |
| 147 | petD-1 | 2,94 | 5 | 173 | rpl235' | 2,04 | 5 |
| 157 | infA | 2,93 | 4 | 14 | psbI | 2,03 | 6 |
| 96 | ndhK | 2,93 | 6 | 231 | ndhD-1 | 2,03 | 2 |
| 151 | petD/rppoA | 2,93 | 5 | 151 | petD/rppoA | 2,02 | 6 |
| 85 | rps4 | 2,90 | 5 | 37 | psbM2 | 2,00 | 6 |
| 204 | trnI-GAU-2 | 2,85 | 6 | 141 | psbH-2 | 2,00 | 6 |
| 159 | rps8/14/16 | 2,83 | 5 | 69 | trnR | 1,99 | 6 |
| 172 | rpl23 | 2,80 | 6 | 152 | rpoA5' | 1,98 | 5 |
| 37 | psbM2 | 2,79 | 6 | 193 | rps12int2-1 | 1,92 | 6 |
| 146 | petB/D1 | 2,78 | 5 | 223 | rps15/ndhF | 1,83 | 6 |
| 211 | rrn23-2 | 2,77 | 6 | 10 | rps16-3 | 1,83 | 4 |
| 34 | trnD-GUC5' | 2,72 | 2 | 236 | psaC/ndhE | 1,75 | 6 |
| 26 | trnG-UCC/ORF69 | 2,69 | 3 | 221 | ORF63//rps15 | 1,74 | 5 |
| 145 | petB-3 | 2,66 | 6 | 200 | rrn16-1 | 1,73 | 6 |
| 25 | trnG-UCC | 2,64 | 6 | 21 | ycf9/trnG | 1,69 | 6 |
| 160 | rpl14 | 2,64 | 4 | 142 | petB-1 | 1,66 | 5 |
| 240 | ndhG-2 | 2,63 | 5 | 110 | psaI-1 | 1,64 | 5 |
| 70 | trnR/rps14 | 2,59 | 6 | 27 | ORF69 | 1,62 | 5 |
| 142 | petB-1 | 2,52 | 4 | 199 | rrn16-5' | 1,58 | 6 |

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|-----|----------------|------|---|-----|----------------|------|---|
| 173 | rpl235' | 2,51 | 4 | 34 | trnD-GUC5' | 1,58 | 4 |
| 124 | trnW/trnP | 2,49 | 6 | 150 | petD-3 | 1,57 | 6 |
| 128 | rpl33 | 2,47 | 4 | 222 | rps15 | 1,57 | 5 |
| 105 | atpB5' | 2,46 | 5 | 139 | psbB-psbH | 1,56 | 6 |
| 200 | rrn16-1 | 2,44 | 6 | 225 | ndhF-2 | 1,51 | 2 |
| 215 | rrn5-1 | 2,44 | 6 | 239 | ndhG-1 | 1,50 | 2 |
| 7 | rps16-2 | 2,43 | 4 | 237 | ndhE | 1,46 | 2 |
| 143 | petB-2 | 2,36 | 5 | 158 | rps8 | 1,46 | 5 |
| 197 | orf58/orf85 | 2,33 | 4 | 89 | trnL-UAA-1 | 1,43 | 6 |
| 20 | ycf9 | 2,33 | 4 | 144 | petBintron | 1,42 | 6 |
| 4 | trnK1 | 2,29 | 6 | 211 | rrn23-2 | 1,42 | 6 |
| 236 | psaC/ndhE | 2,22 | 5 | 149 | petDint-1 | 1,41 | 6 |
| 223 | rps15/ndhF | 2,18 | 6 | 147 | petD-1 | 1,37 | 5 |
| 180 | orf99/173 | 2,18 | 3 | 181 | orf173-3' | 1,37 | 6 |
| 10 | rps16-3 | 2,17 | 6 | 84 | trnS-GGA2 | 1,34 | 6 |
| 158 | rps8 | 2,17 | 2 | 143 | petB-2 | 1,31 | 4 |
| 209 | trnA-UGC-2 | 2,13 | 6 | 240 | ndhG-2 | 1,30 | 5 |
| 115 | cemA/petA | 2,11 | 3 | 44 | rpoB1 | 1,30 | 6 |
| 196 | orf58-1 | 2,11 | 5 | 215 | rrn5-1 | 1,29 | 6 |
| 14 | psbI | 2,05 | 5 | 146 | petB/D1 | 1,20 | 6 |
| 208 | trnA-int | 2,05 | 6 | 175 | orf46/34/241 | 1,20 | 3 |
| 222 | rps15 | 2,05 | 3 | 224 | ndhF-1 | 1,16 | 5 |
| 207 | trnA-UGC-1 | 2,04 | 6 | 148 | petB/D2 | 1,13 | 6 |
| 216 | rrn5-2 | 2,00 | 6 | 111 | psaI-2 | 1,13 | 4 |
| 199 | rrn16-5' | 1,96 | 6 | 115 | cemA/petA | 1,11 | 5 |
| 49 | rpoC1/C2 | 1,94 | 4 | 90 | trnL-UAA-2 | 1,08 | 6 |
| 111 | psaI-2 | 1,94 | 5 | 4 | trnK1 | 1,08 | 6 |
| 47 | rpoB/rpoC | 1,94 | 4 | 47 | rpoB/rpoC | 1,07 | 3 |
| 90 | trnL-UAA-2 | 1,92 | 6 | 124 | trnW/trnP | 1,07 | 6 |
| 224 | ndhF-1 | 1,91 | 3 | 49 | rpoC1/C2 | 0,95 | 3 |
| 219 | trnN-GUU | 1,90 | 6 | 83 | trnS-GGA | 0,94 | 6 |
| 30 | trnT-GGU3' | 1,86 | 4 | 196 | orf58-1 | 0,92 | 4 |
| 24 | trnM-CAU | 1,85 | 6 | 197 | orf58/orf85 | 0,91 | 3 |
| 89 | trnL-UAA-1 | 1,84 | 6 | 145 | petB-3 | 0,90 | 6 |
| 88 | trnT-UGU2 | 1,79 | 6 | 226 | ndhF/rpl32 | 0,88 | 2 |
| 227 | rpl32 | 1,69 | 4 | 203 | trnI-GAU-1 | 0,83 | 6 |
| 38 | petN1 | 1,53 | 5 | 88 | trnT-UGU2 | 0,73 | 6 |
| 21 | ycf9/trnG | 1,52 | 6 | 33 | trnY-GUA | 0,64 | 6 |
| 218 | trnR-ACG/orf23 | 1,49 | 6 | 227 | rpl32 | 0,62 | 6 |
| 41 | trnC-GCA1 | 1,40 | 6 | 29 | trnT-GGU | 0,59 | 6 |
| 33 | trnY-GUA | 1,38 | 6 | 38 | petN1 | 0,57 | 5 |
| 32 | trnE-UCC | 1,37 | 6 | 30 | trnT-GGU3' | 0,56 | 6 |
| 29 | trnT-GGU | 1,36 | 6 | 22 | trnG-GCC | 0,56 | 6 |
| 217 | trnR-ACG | 1,35 | 6 | 216 | rrn5-2 | 0,51 | 6 |
| 83 | trnS-GGA | 1,33 | 6 | 19 | trnS-UAG | 0,49 | 6 |
| 206 | trnI/trnA | 1,32 | 6 | 91 | trnL/trnF | 0,42 | 4 |
| 22 | trnG-GCC | 1,29 | 6 | 174 | trnI-CAU | 0,42 | 6 |
| 91 | trnL/trnF | 1,24 | 6 | 26 | trnG-UCC/ORF69 | 0,40 | 6 |
| 28 | trnT-GGU5' | 1,21 | 6 | 202 | rrn16/trnI | 0,38 | 6 |
| 84 | trnS-GGA2 | 1,18 | 6 | 87 | trnL-UAA1 | 0,36 | 6 |
| 42 | trnC-GCA2 | 1,15 | 6 | 24 | trnM-CAU | 0,35 | 6 |
| 86 | trnT-UGU | 1,12 | 6 | 92 | trnF-GAA | 0,35 | 6 |
| 228 | trnL-UAG | 1,11 | 6 | 98 | trnV-UAC-1 | 0,30 | 6 |

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|-----|------------|------|---|-----|----------------|-------|---|
| 167 | trnH-GUG | 1,08 | 6 | 41 | trnC-GCA1 | 0,27 | 6 |
| 15 | trnS-GCU | 1,06 | 6 | 23 | trnG/trnfM | 0,24 | 6 |
| 31 | trnE/trnY | 1,04 | 6 | 198 | trnV-GAC | 0,17 | 6 |
| 182 | trnL-CAA | 1,01 | 6 | 15 | trnS-GCU | 0,14 | 6 |
| 11 | trnQ | 0,97 | 6 | 11 | trnQ | 0,12 | 6 |
| 87 | trnL-UAA1 | 0,93 | 6 | 205 | trnIint | 0,02 | 6 |
| 35 | trnD-GUC | 0,92 | 6 | 31 | trnE/trnY | 0,00 | 6 |
| 210 | rrn23-1 | 0,89 | 6 | 228 | trnL-UAG | 0,00 | 6 |
| 23 | trnG/trnfM | 0,89 | 6 | 204 | trnI-GAU-2 | 0,00 | 6 |
| 198 | trnV-GAC | 0,75 | 6 | 32 | trnE-UCC | -0,03 | 6 |
| 174 | trnI-CAU | 0,73 | 6 | 42 | trnC-GCA2 | -0,04 | 6 |
| 19 | trnS-UAG | 0,66 | 6 | 182 | trnL-CAA | -0,07 | 6 |
| 92 | trnF-GAA | 0,64 | 6 | 218 | trnR-ACG/orf23 | -0,10 | 6 |
| 101 | trnM-CAU | 0,54 | 6 | 101 | trnM-CAU | -0,14 | 6 |
| | | | | 167 | trnH-GUG | -0,21 | 6 |
| | | | | 28 | trnT-GGU5' | -0,27 | 6 |
| | | | | 100 | trnV-UAC-3 | -0,28 | 6 |
| | | | | 35 | trnD-GUC | -0,31 | 6 |
| | | | | 217 | trnR-ACG | -0,33 | 6 |
| | | | | 86 | trnT-UGU | -0,46 | 6 |
| | | | | 99 | trnV-UAC-2 | -0,56 | 5 |
| | | | | 209 | trnA-UGC-2 | -1,16 | 6 |
| | | | | 210 | rrn23-1 | -1,37 | 6 |
| | | | | 25 | trnG-UCC | -1,45 | 6 |
| | | | | 208 | trnA-int | -2,36 | 6 |
| | | | | 206 | trnI/trnA | -2,62 | 6 |
| | | | | 207 | trnA-UGC-1 | -2,64 | 6 |
