

Supplementary Figure S1

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| <u>CTCGAG</u> | <i>Xho</i> I |
| CGATCCGATTCCGAAGCATATCAGGGCATGCCGCAATTCAACCGGGATAAGGGGTTTATCATGTT | |
| TCAATCCTTTGCGTCAAGGTTTCGACGGCTACCGTTGTCAGGTGAACGGTCATATCCACAGCAACGCCCCC | |
| GACGCGTACAGCCATGGCAAAATAAAAACATGTTGTGACACATCACAATATAATTGACCGGCTGGCACATG | <i>PCY1</i> promoter region |
| CAAGGACAGCTCTTGACTGGATAGATATCCCTCGGCTGTCCGGACTGGTAATCCGCATGACGATCGGAGCA | |
| GGCAACCTGGGAGGAATCTACGTTGTGTAATTAATTCAAAGTGAAAACTTTTTATATATCTGCAAGGTCAC | |
| TACTTAAAGCACTTCAGTTGGAACACAGTATGATCATCTTGAATGTAACGAAGCCAACCTGCATACGTAAA | |
| CAAATATATAAGTCTTCCAATCATCTCTATTTATCCATCCTCAATGTCTCTGGCCAATCTTATGCTGTCCA | |
| TGTTGCTGCTACGGCTTCATGGGCCCTGTGGAATCTTATCATCCATCGTACTCGTTTGTTCATATAACAG | |
| GCTGTCAATTACCATCTATATTACACCTGGTCACAGCGTATTAATCCATTCTCAT <u>ATCGAT</u> GAAGAG <u>ATGG</u> | <i>Cla</i> I |
| <u>TCAACGGCGTGAAGGTGCTGTTTCGCCCTGATCTGCATCGCCGTGGCCGAGGCCAAGCCCACCGAGAACAAC</u> | V.c. Kozak sequence |
| GAGGACTTCAACATCGTGGCCGTGGCCAGCAACTTCGCCACCACCGACCTGGACGCCGACCGCGGCCAAGCT | |
| GCCCCGCAAGAAGCTGCCCCCTGGAGGTGCTGAAGGAGATGGAGGCCAACGCCCGCAAGGCCGGCTGCACCC | |
| GCGGCTGCCTGATCTGCCTGAGCCACATCAAGTGCACCCCCAAGATGAAGAAGTTCATCCCCGGCCGCTGC | <i>G-Luc</i> |
| CACACCTACGAGGGCGACAAGGAGAGCGCCCAGGGCGGCATCGGCGAGGCCATCGTGGACATCCCCGAGAT | |
| CCCCGGCTTCAAGGACCTGGAGCCCATGGAGCAGTTTCATCGCCCAGGTGGACCTGTGCGTGGACTGCACCA | |
| CCGGCTGCCTGAAGGGCCTGGCCAACGTGCAGTGCAGCGACCTGCTGAAGAAGTGGCTGCCCCAGCGCTGC | |
| GCCACCTTCGCCAGCAAGATCCAGGGCCAGGTGGACAAGATCAAGGGCGCCGGCGGCGACGATACG <u>TAATC</u> | <i>Xba</i> I |
| <u>TAGA</u> TAAATTTCCTGGTGGAGTCATTGTGTTGGAGCCATTGGAGCTCTGCAAGAGTGGCATTATCAAGAACG | <i>Lhcbm1</i> terminator region |
| TTCACGCGCGGAAGGGATATTTAGTGGCTGTCTGAGCGTAGAGTGATACCCACATCTTGGGTTTGTAAACAT | |
| AAATCTGATGTGATCCGATGTATCTTATCTATCTGTTTATTGCTTGGACAATTTTCGGCATTATTAGGCA | |
| GATGGACTGTGATAATGTAGAGCAGCCGAGAAATATGCACTGAAAGCAGGAAGCTAAACACGAAAACAATG | |
| TATGCGGGCTCG <u>GCGGCCGC</u> | <i>Not</i> I |

Insert sequence of the vector pPCY1-Luc. The vector pPCY1-Luc carries a 617 bp DNA fragment containing the *V. carteri* *PCY1*-promoter region, the 570 bp coding sequence of *Gaussia princeps* luciferase (*G-Luc*), and a 292 bp fragment containing the *V. carteri* *Lhcbm1* terminator region. The gene entries of *PCY1* and *Lhcbm1* in the current *Volvox carteri* genome version 2.1 in Phytozome 13 are Vocar.0015s0197 (*PCY1* gene) and Vocar.0001s0479 (*Lhcbm1* gene). The *PCY1* gene is on scaffold 15 at nucleotide positions 1482932 bp to 1484377 bp (forward). The *Lhcbm1* gene is on scaffold 1 at nucleotide positions 3740810 bp to 3742363 bp (forward). For the vector construction, pBluescript II SK (–) (Agilent Technologies, Santa Clara, CA, USA) was used as a backbone, because it includes an origin of replication of *E. coli* and an ampicillin resistance cassette. The sequence of pBluescript II SK (–) is as in GenBank (acc. no. X52330) but not shown here. The DNA fragments were inserted between the *Xho*I and *Not*I sites of the multiple cloning site of pBluescript II SK (–). The background colors indicate the following sequence features: green, *PCY1* promoter region; gray, *V. carteri* Kozak sequence; yellow, coding sequence of *G-Luc*; orange, *Lhcbm1* terminator region. Start and stop codons are highlighted (violet font). Relevant restriction sites are marked (bold, underlined).