Supplemental Figure S1

Sequence of the chimeric gene *phG:yfp* as it is present in the vector pPhG-YFP

GGTACCTGAACATGCTTTTAGGACTTTCAATCTGTGCACCCGAACACACAAGTTACAATCAACGCTGT *Kpn*I
AATGCGGGTAAGTTAATAATTAATGCATTTGTCAAGCAATCGGTGTTTGACATCCGTGATAAAGTCTC
TTCAGAATCTGCAGCCCGAGTGTTCAATTTGTTCATTAAAACTTGTGAAAAGTGTATGAATGTGTCTA
TTTGGCATGTACTTCTGTGTTAATGATACAGCCGGTGATACGCGTTTGATACCACTCGTTATCCGGAA
CAATCGACCCGTATCGACATGATGTAGATGTCCTGGGATCGCTGATGGATTCCCAAAAATTCTTCTGT
TGCTTATCTTCAGAACAAAGTACTTCAATCTTCTATGCTAGAAATACCAGTGCTCAACGAATGCTCCT
GCCTGCCGCCACCACATCTCGCTGTATGTGTCGCAAAGGCGGGATCCGCATATTGAACAACACCTTTC
TCAATTGACTCCAAGCACCAATGTTGCCAATATATTTATTCAGACATTGCGATATATACTCCAAGGCA
AGGAAACGAACGGCATCAATGTCAAGTGCGCTAATGCACGCACGGGTCGCGAGCGCTACAATGCTGAC
GAGCCCATACTTCAATCAGGAGTAAGCGACGAAAGTGAGGAATATCGACTAAGCGATGACAGTGAGAA
ATCGTTAATTGTGCATAACAAGCGTGATTCCCGCTTGAAGGGTTGTAGCTGCATCTAGCTTTTTGCCC
GTGGCAGCAGATGGCAAATATCTACCATCGGCTGTCAAGTAAATACGGTTTTGTCGGGGATTTAAAGT
AACGAAAGGTTCAAAGGAACGGAAGGAGCTACACATTGGGCTGCACGCGACTGATTTCAACCAGCTCC
ATTGTCGTACTGTACGTTCAAAGTAGTCTGAAGTAAAGCTGACTATAAATACGCGGTTGCCAATTATA
C**GTCGAC**ATACTAATTGGGCACAT**AGATCT**CCTAC**ATG**CGAACACCAATGAGGAATATACTGCTGGCT *Sal*I, *Bgl*II, start
GCTCTTTGCGTAGTCGCCGTATTCTCGTAAGTGTCGTTGCTTACCTTGCTAGGGCCAGCTGCAGGCTT
CGATGTACAAGCATGTAGGGTTCGCAGGCTTATTCTTAAACGTTTACCTACCTTCTGAGCCATGAGGA
GTCGTAGCTTTAATAGCCATGCTGCAATCCGTTTGGCTTACGTCGCTTTGGCGGGCACGGGCGCCAGT
ATCACCCCGTGTCGTTGATCGCTGCGGCTCCCCTCATTTTGCGAAATTCACCATCATATTTGTAAATG
ATTGATGACTTGCTGAATCTCTTGCCACCTTGCGCTTATTTTCCAATCTGCAGGGCGTCGCACGCGCT
GAGTAGTCCGCTGTCGCCCCCGCCGACAAGATACCAGGCATTTCCTTACTGCGCAAAATGCGTCGCTT
TGGAGCCTATATACCGTCTAAAGCCTGATTTTGCCGGATTTGGAAATCGCACCTTCTGCTTCACGCTG
GAAGTGAATCCTCTCAATGCCGACTTCATGTGCAAGAATGCATTAATCTACAAGATGGATGTGAGTAT
ATATCAATTGAACATGTGTTGATGTAGCGCAACTAGCACTTCGGGCGGTTCTCGAAATCTAGCAGCCT
TTCGCGTTACGGTTGTCGAACGTTAAAGCTTTAGTCAGTCACGAGGGCGCGCAACTGTGTGTCACTCC
ATTCGAGCAGATTTACCTTGCCTGGTTGTCTTCATGACATAGAACATAAGAAGGGTTATCTACTTCCA
TTTTTATTATCGTTAACAGCGTTCCCCGGCGAACCCGCAGATGCTTCTCAACAAAGGGTGCGGAAGGG
ATGTTAACGTCAAGGCTTTCGTAAATGGCGTCTTCACAAGGAGCTTCACAGAATCTCCACGTTCTGCC
GCAAATGGGACTGTGATATTGAAACTGAACGATCTGACCGCGCGACACCTGGGTATCAACAGCAATGG
CGCCAGGATTTGCCTTACTATATTGAATGGGGGCAAGGGCAACTGCACCACTTTGAGGTCGCTCTGTG
CAGACCCTAAGACCACCAACTTCAGAAAGGATAACAACGGCACTTACAGAAATACAAATTCCCAAGAG
TGCATGGTTGCGCTATTCGCCGGGATCGACAGTGGCTCCGACCGTACCTGCTGCGACCCCGGTTCTCC
CCCATCTCCAACGCCGCCCCCGCCTCCTCCAGGGAATTGCACGGAGGAGAAGGTCTGTGTCTATCTGA
CCTTTGGGTTCCGCGAACCG**GACGTC**GCCTTCCCCAACGGCACCTGCAATAATTTGGCCAGCCAGATA *Aat*II
CAGTTCGACCTCCTCAACTCAAGCGCATCCTACATCTTGCAGCCCCCGGTAGTTCCACAGATCACTTG
CACAGCAGACTTTATCAAAGTTTGCTTAAATTTGGACTTGCACGCTAACGCTACAGAGCTGCATTCCG
TGGTTGGTGAAAATGCCGGTCCCTGGCTGAATTACGCTCACAACTCCACGTGTGCGGCAAGTCGCTCC
AACTACAGCCTCACAATTACGGTCGGAGGGGATGGCGACTG**GTCGAC**TGGCAACGTCTCGTTCCGTTG *Sal*I
TTTCAATGCGTCAACTGAAACCAAGTGCCAAGGGCCCTCGAAGAAATCATGCAAGTGAGTCGAGCAAA
CCTGGAGGAGGGGGACAAGTATTGCGTGGCGGTGGGGAGTAAACATGTCTGGCGTTGATCTAATGTGG
GATTGCATGCTCGACGCGGATGCATGCACGCATCCACGTACGTGTCAGCAGCTACATCTTCCTGAGCT
ACTGGTTTGAATTGGATTTTAGCAGCTTTGTGCCCTCACATGATTATCCTTCCAGCTGTATCCCTCTG
CTCTCGCCACCTATCCCTTTCCCTCCTTTCCTCTCCTTCCTCCGCAGCTGCAATATGGCGAGGAACAT
CACCCCCTTCGCCGCCTTGCCGACTATGAGCGGTCCCTTCACGGGCCGCAAGAACACGAAGCTGTACT
GCTTCAACATCACCGTCGTGAAGCCCATCGAGCCAAATGTGGGTCGCAGCGCTCGCTGGCGCCGCCGT
ACACCGCATGATAGCATGTGCATGTCCTGGTTGATGTATGTATGTATGTATGTGGCCATCTACTGGCT
GCGACACGAGCACAGTAGTAGTGCCACATTGACGGCTACATCGATTACGCCTGTACAGATGTCTAAAT
GGTGCATGCGGCCACATCTTCCTCCAGTAGCACTCCATTACGGTTCCCTTGCTATCCAATCCTATCCC
TCGCATATCCCCCCTTTACAGAGCACCTGCGGTAAAAGCAATGTGCTCGATAAGGTCATCATCTGGGC
CAACGACACCAGTTTTTACCGCAGCAGCATCAAGTCCATCGCTCTCTACGCTGCGGGCGACACCACCG
CGAAGTATGTCCCGCCGAGCTGGAACTCGGATAGACAGGAGGTGAAGGCAACCAAGATTGGCTGGACT

AAGGATAAGGCGAACGGCGGCGCCATCTGCCTGGAGCTGGACCAAAACGTCAACCTGGCTGACTTTTG
CATATGGCGGGGTCCCAAGCAGAAGAACTCTTGCATGTAAGGGCCTGGGGATTTATTTGGGGGTTGCC
TGCATGCTTGTCATGCAGTGTGCATGCATGGCGGGATGTGAGTGTGCGCGAACTAGGCGGCACTCGGT
CGCCATCCCGGCTGCAGAAATGCAGGCATGCACCTAGCTAGACTATTTACGCGTGCTTCCTTGCACAT
GGTTGAAGAGCTCTCCAATGGCACCCTAGCCTTGCACTAGCTTAGCTTTTCTACTGCTTAGAGGCGCC
TCTGGGCCGAGCGTCCTGTCTACCTACCTTATTGTGCGTCCCCCATGCCCATGCCCATCTTGCTGAAT
GCAGGGTTTTACTTTTCGATACATCCTATAGATGCTGCCCGATGTACCGGCCGATGGCGCTTACTACG
ACTAGTTCTAGAGGCGGAGGCGGTGGCATGAGCAAGGGCGAGGAGCTGTTCACCGGCGTGGTGCCCAT — ***Spe*I, *Xba*I,** gly5
CCTGGTGGAGCTGGACGGCGACGTGAACGGCCACAAGTTCAGCGTGAGCGGCGAGGGCGAGGGCGACG
CCACCTACGGCAAGCTGACCCTGAAGCTGATCTGCACCACCGGCAAGCTGCCCGTGCCCTGGCCCACC
CTGGTGACCACCCTGGGCTACGGCCTGCAGTGCTTCGCCCGCTACCCCGACCACATGAAGCAGCACGA
CTTCTTCAAGAGCGCCATGCCCGAGGGCTACGTGCAGGAGCGCACCATCTTCTTCAAGGACGACGGTA
ACTACAAGACCCGCGCCGAGGTGAAGTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGC — *yfp*
ATCGACTTCAAGGAGGACGGCAACATCCTGGGCCACAAGCTGGAGTACAACTACAACAGCCACAACGT
GTACATCACCGCCGACAAGCAGAAGAACGGCATCAAGGCCAACTTCAAGATCCGCCACAACATCGAGG
ACGGCGGCGTGCAGCTGGCCGACCACTACCAGCAGAACACCCCCATCGGCGACGGCCCCGTGCTGCTG
CCCGACAACCACTACCTGAGCTACCAGAGCAAGCTGAGCAAGGACCCCAACGAGAAGCGCGACCACAT
GGTGCTGCTGGAGTTCGTGACCGCCGCCGGCATCACCCTGGGCATGGACGAGCTGTACAAG**GATATCG** — ***Eco*RV**, ***Eco*RI**,
AATTCTGGAGCCACCCGCAGTTCGAGAAG**TAA****TCTAGA**TAGATGCGTGCCGTCACAGCTGGCTAGTCT — strep tag, **stop**,
TGTGCAGAGCATGCACGTTGGATCACTGACCTGGTGAGGCGAGGAAGCCCCATCTAAGGTTGTGCGAT — ***Xba*I**
TGGGCGATTTGTGTGTTGCGTGGTAGGATGTAGAATATTTGGTTTGCGAATGTGCTTTGGATAAAATC
CATGTTGGTAGTTCCTAAACTTGTGCACGATGCTGCCCGTGAACAGGGCAGGTAAGGTTGTGTGTTTG
GAAGTGTTTGGAATTACATGGAGGTTATCTCTAAGTTTCAGTGATTAACAGTGCTTAAACAGTCATGT
CTGGTTTGCGGCTGTTTGCGTGTTCCTGCCTGTTCTTACCGGCCGTGTTGCCTGCTGGACCTGCCGCT
GCTGCGCAGCCTACCCGTGCGATTTCGCTAGGAAGAATTTCATTTCGTTGTGCAGGTCGCCTTTCTTA
CTTTTTCAATTCTGTCTGTCAGAGGTGCTTGCTTCCTTGCAGCAGGTGGAACTGATCACCTCGCCGCC
GTTTCGATCATTTAAATACCCCCTACGTCGCGCAATGATGTGGGGTATCGTAGGCTGCTTTATGCAGC
CTCGTTCGCTTATTTGATCGCACCTGCGATTGTAGCAGCTTCATTCATTAGCTGAATCAAGTGAGCGA
GCACGCTCGGTCGGTCAGGTTTTATAACATGCTGCTTGCTGCTCAAGCTTTTGCTAATATTGTATAGC
GCAGGTACGCTTTGCTGATTGCTTCTGGGGTCGCCTAGTTCGGGGCTACTGCTTGCATGCTGTGTGTG
GTGAGATAGCAGGCTGGCTGCCATTACTGCGGAGTACGCAGCTCTTCAGCCATATATTCATAGTTAGG
ACGAATTGATTAGCCAGC**CCATGG**CGATGTCAGTTCAGTTCAATGTCCATTTTCATACGCGCCTTGCG — ***Nco*I**
TTTTGTTTATGGCTGTCAGTCTGCGTGATCACCTTATGTTAGATCGATGCATCCTGCAATCGTTTTGT
GCGTTGTAACACTGCGAGCGCGACAGGCAGAGTGTTAGGCGTATTGGCGAGAAATGTCCTGTTCGGTT
AGGGCGGTTTGGTTAGGGCAGTTTCTAAAGATCCTCTGCCGGCTGATGGAAATATCGGTGTTTATGTG
TAGGAAATTTCTCCCGCCCGCCATCCATCCCCAACATTACCGTGTAACATAATCCAACAATCCTTGGC
CCATCCTATCCTATCCAAGCAGGTCTTCAAGCATACTTTTTCATCTCCTTCACACTGCAGCCGGCAGC
AGGCATGATTCCTGCGAAC**GCGGCCGC** — ***Not*I**

The vector pPhG-YFP carries a 5.3-kb fragment of *V. carteri* genomic DNA containing the *phG* gene (*phG*) including its 5 introns, a short linker sequence, which codes for 5 glycines (Gly5), a strep tag and the coding sequence of *yfp* (mVenus). The chimeric gene is controlled by the original *phG* 5' and 3' flanking sequences, including the promotor region. The corresponding gene entry in the current *Volvox carteri* genome version 2.1 (Prochnik et al., 2010) in Phytozome 12.1.6 (Goodstein et al., 2012) is Vocar.0001s0298, the former common name is *phV47* (von der Heyde and Hallmann, 2020). The *yfp* (mVenus) gene has been codon-adapted for *C. reinhardtii* (Lauersen et al., 2015) but also works well in *V. carteri* (Tian et al., 2018; von der Heyde and Hallmann, 2020). Artificial *Xba*I, *Not*I, *Bgl*II and *Spe*I sites have been introduced to facilitate cloning. The background colors indicate the following sequence features: grey, *phG* promoter region, green, 5' and 3' UTRs of *phG*; blue, coding sequences of *phG*; turquoise, sequence coding for 5 glycines (Gly5); orange, sequence coding for strep tag; yellow, coding sequence of *yfp* (mVenus). Start and stop codons are highlighted (violet font). Relevant restriction sites are marked (bold, underlined).

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