
Nucleotide sequence of a second *psbA* gene from the unicellular cyanobacterium *Synechocystis* 6803

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In *Synechocystis* 6803 the *psbA* gene, encoding the D1 polypeptide of the Photosystem II reaction center, belongs to a multigene family with three copies (1). The nucleotide sequence of *psbA-1* has been reported (2). We have cloned and sequenced a second *psbA* gene, *psbA-2*, from *Synechocystis* 6803. The second copy of *psbA* is contained within a 2.1 kb genomic Hind III fragment. The *psbA-2* open reading frame is highly homologous to *psbA* genes from other cyanobacteria and higher plants.

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-15  AGGAATTATAACCAAATGACAACGACTCTCCAACAGCGGAAAGCGCTTCTTGTGGGAA
      M T T T L O O R E S A S L W E
  46  CAGTTTTGTCAGTGGGTGACCTCTACCAACAACCGGATTATGTCGGTTGGTTCGGTACC
      Q F C O W V T T S T N N R I Y V G W F G T
 106  TTGATGATCCCCACCTCTTAACCTGCAACCTTGCTTATGCCTTCATCGCCGCT
      L M I P T L L T A T T C F I I A F I A A
 166  CCCCCGTTGACATCGACGGTATCCGTGAGCCCGTTGCTGGTCTTTGCTTTACGGTAA
      P P V D I D G I R E P V A G S L L Y G N
 226  AACATCATCTCTGGTGTCTGTGTACCTTCTTCCAACCGTATCGGTTTGCCTTCTACCCC
      N I I S G A V V P S S N A I G L H F Y P
 286  ATCTGGGAAGCCGTTCTTAGATGAGTGGTTGTACAACGGTGGTCCCTTACCAGTTGGTA
      I W E A A S L D E W L Y N G G P Y Q L V
 346  GTATCCACTTCTCATCGGCTTTTCTGTACATGGTTCGTAGTGGGAACTTCTCTAC
      V F H F L I G I F C V M G R W E L S V
 406  CGCTTAGGTATGCGTCTTGGATTTGTGGCTTACTCTGCCCCGATCCGCTGCCACC
      R L G M R P W I C V A Y S A P V S A A T
 466  GCCGTATCTTGTATCAACCTTGGTCAAGGCTCCTTCTCTGATGGTATGCCCTTGGGT
      A V F L I Y P I G O G S F S D G M P L G
 526  ATTTCTGGTACCTTCAACTTCATGATCGTGTCCCAAGCTGAGCACAACATCTGATGCAC
      I S G T F N F M I V F O A E H N I L M H
 586  CCCTCCACATGTTAGGTGTGGCTGTATTCCGCTGGTAGCTTGTCTCGCCATGCAC
      P F H M L G V A G V F G G S L F S A M H
 646  GGTTCCTTGGTAACTCCTCTTGGTGGTGAACCCGGAAGTTGAATCCAGAACTAC
      G S L V T S S L V R E T T E V E S O N Y
 706  GGTTACAAATTCGGTCAAGAAGAAGAACTACAACATCGTTGCCGCCACGGCTACTTT
      G Y K F G O E E E T Y N I V A A H G Y F
 766  GGTCTGGTGTATCTTCCAAATATGCTTCTTCAACAACAGCCGTTCTTGCCTTCTTCTTG
      G R L I F O Y A S F N N S R S L H F F L
 826  GGTCTTGGCCTGTAATCGGCATCTGGTTCCTGCTATGGGTGTAAGCACCATGGCGTTC
      G A W P V I G I W F T A M G V S T M A A
 886  AACCTGAACGGTTTCAACTTCAACCAGTCCATCTTGGATAGCCAAGGCCGGTAAATCGGC
      N L N G F N F N O S I L D S O G R V I G
 946  ACCTGGCTGATGTATGAACCGAGCCAACATCGGTTTTGAAGTAATGCACGAACCAAT
      T W A D V L N R A N I G F E V M H E R N
1006  GCCCAACTTCCCCCTCGACTTAGCGTCTGGGGAGCAAGCTCCTGTGGCTTGGACCGCT
      A H N F P L L D L A S G E Q A P V A L T A
1066  CTTGCTGTCAACGGTTAATTCCTTGGT
      P A V N G *

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References:

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2. Osiewacz HD, McIntosh L (1987) *Nucl. Acids Res.* 15:10585.