

Nucleotide sequence of the chloroplast large subunit rRNA gene from *Chlamydomonas reinhardtii*

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The chloroplast large subunit (LSU) rRNA gene from the green alga *Chlamydomonas reinhardtii* features a group I intron and codes for three distinct rRNA species designated 7S, 3S and 23S rRNAs (1-3). The regions encoding these rRNAs are not contiguous; they are separated by short sequences that are probably transcribed together with the remainder of the gene into a primary transcript and are removed subsequently by endonucleolytic cleavage. Only part of the *C. reinhardtii* chloroplast LSU rRNA gene sequence has been reported so far (1-3). We have recently undertaken a phylogenetic analysis of the chloroplast LSU rRNA gene in the genus *Chlamydomonas* and, in the course of this study, have completed the sequence of the *C. reinhardtii* gene and confirmed the positions of the 5' termini of the three mature RNAs encoded by this algal gene. The sequence we determined covers a total of 2896 nucleotides, some of which overlap with the sequence published previously (positions 1-730 and 2213-2896). It includes the regions encoding the 7S, 3S and 23S rRNAs (framed nucleotides), but not that encoding the intron (its insertion position is denoted by the arrow). The underlined nucleotides differ from those found at the corresponding positions in the partial sequence that was previously available. Using primer extension experiments, we confirmed the positions of the 5' termini of the 7S and 3S rRNAs as determined by Rochaix and Darlix (2) by direct RNA sequencing. Using the same approach, we found that the 5' terminus of the 23S rRNA resides 56-59 bases upstream of the tentative positions identified by these authors.

1 GAATTAAGGCGTACGGTGGAGACCTAGGCACTCAGAGCAAGAAGGCGCAGATACCGGCGATACGCTTCGGGGAGCTGGCAACAAGCTTTGATCCGAAGATCCCGAATAGGGCAA CC 7S
121 TCATGAAGCTACTATATATTCATAGTAAAGTAAAGGCCAACCCAGTGAAGTCAAGCATCTAAGTACCGTGGAAAAGAAAGCAACCGGATTCGCGTAGTAGCGGCGACCGAACCCG 3S
241 GACACGCTAAACCTATGTGCGAAGATGTAAGGGGTCTGGGGAGCAACATAAAAAATCGCTATTTTANFACGAGCGACTGAACTCTGACCCATGATGTAAGTCCAGTAGTAA 3S
361 AGAATAATTAGATTTTGTCTATCCGAGTACATGCGGCACTGGGCACTGGAAATCCGTTGTGAATCAGCGGAGCCACTCGTAAGCTAAATCTCTCGTGTGACGATAGCGAATAGTA 481
481 ACGAGGAAGGTGAAGAAGACCCCTGTGGGGGTAAANTAGAACATGAACCGTATGCTGACAGCAGTGGAGCAAGAATGCTGTGACCGGTGCCCTTTGATAGATTAAGCGCG 601
601 ACTTATAGGGATGTCGCTGGTTAAGGAGTAAATCCGAGCCCGAGCGAAAGCGAGTCTGAATAGGGGCGCAATGGTCACTTCTTATGAGCCCGAACCCGGGTGATCTATCATGCCAG 721
721 GATGAGCTTGGGTAAACCAAGTGGAGGTCCGAAACCGACCGATGTTGAAAAATCGGCGATGAGCTGTGAATAGGGGAGAAATCCCAATGAACTGAGCGAGTACGCTGGATCTCCCGAA 841
841 ATCGGTTGAGCGCGACGCGTAAACGATGAATCTGCTGGGTAAAGCTACTGTTTCGATGCGGGCTGCGAAAGCGGTACCAAGTCTGGGCAACTCAGAATACGAAGACATGTCTCCGTA 961
961 ACCAGTGAAGACATGGGGATAGCTTCAATGTCAGAGGGAAGAACGCGACATCAACAGCTAAGGCCCTAAATGTCACATAAGTGGAAAAGGATGTGAGAAATGCTGAAACAACAGGA 1081
1081 GGTTCCTTAGAGCAACCCCTCAAGAGTGGTAAATAGCTCACTGGTAAAGGCTCTTGGCCGATAATGGCCGGACTAGTCACTGCCGAGACTGTGATATAATTTATAT 1201
1201 AAATATAGTGGGGAGTCCGCTCGCGCTCGGGTGAAGTTTCACTGAATGGGGATGGACGAGCGGAAGTGAAGATGTCGCTGATGAGCAAGAAACATGTTGGAGATCCCAATG 1321
1321 CGAAACCTAAGGGTCTCCACTAGTGTCCATGGGGGGTGTAGCAGGACTAAGCAGTGGCCAAACCGCGTGTGATGAGAAACAGGTTAATATCTGCTGACGATTAATTA 1441
1441 ATCTGAGGACGAAAGGAGCTAAGCTAGAAGTCTTTGGATTCAGTGGAGGCTTTAGACGTTGAGAGATAGAAAAAGCTACTTGGTGGAGACGATCCCTATGTAAGTTC 1561
1561 GCGCTGAGTAGCTAGTATGATCTACTCCAGAAAAGCTCATACATCTTTAATTAATTAAGCTGTACTGAAACCGACACAGGTAGGTTGGTAGAAGATACCAAGGGGCGCGAG 1681
1681 AACCTCTCTAAGAACTCGGCAACTGGCCCGTAACTTCGGAAGAAGGGGACCCCACTCGTAAAGGAGTGGTGGCAGTGAACAGGCCCGAGGCGACTGTTTACAAAACACAGGT 1801
1801 CCGCAAGTCTGTAAGCAATATAAGGGGCTGACGCTCCGCCAGTCCGCGAAGGTTAAGGAGTTGGTTAATTCGTAAGAAAAGACTGACGCGAAGCCCGGTGAACCGCGCTG 1921
1921 ACTATAAGCATCTTAAGTGAAGAAATTCATTTGCTGATAGTTTGGACTGACGAGAAAGGCGTAAAGCATCTGGGGCTGTCTCGGAGAGGCTCGTGAATAGACTTTGCCGTG 2041
2041 GATCGGACTACTACACTGAGCAGAAAGCCCTATGAGTGTACTGTACTTGGAAATGGGTTTGGGCTTTTCTGGCGACTAGTGGAGGCTATGAAGATACCTCCCGG 2161
2161 AATTAGCGGCTCATTGAGAGCACTCTGAAAGACTAGAACTCTAATGGGATCTTGAATCAGGACCTTGACAGTTTCAAGTGGGCGATTTATTTGGGGGAAATGCTCTTAA 2281
2281 GTAAACGAGGCTGCAAGGTTCCCTCAGCTGAGCGAAATCAGACATTGAGTGTAAAGCAAAAGGAGCTGACTGCAAGACTCAGAACTGAGCAGCGGGGCGAAGCCGCGCTTA 2401
2401 GATCCGAGCGTCCCGCTGGAGGGCGCTCCCTCAACCGATAAAGGTTACTTGGGATAACAGGCTGATCTTCCCAAGAGTTCACATCGACGGGAGGTTGGCACTCGATGTCC 2521
2521 TCATCAGTCTCCGCTGTATGAGTCCGAAAGGTTGGGCTGTGTGCCCAATAAAGTGTAGTGGCTGGTTCAAAAGGCTGTGAGACAGTTTGGTCCATATCCGTTGCGGTTA 2641
2641 GAGCAATTGAGATGACCTTCAATGATCAGAGGACTGAAAGGACATGCCAATGTGTACCAGTCTCAATCCAAATGGGAAAGCTCGGTGACTACGATGGATGATTAAGTCTGTA 2761
2761 GCATCTAAGTAGAGCTAAACTCAAGATGAGTCTCTCAAGGCCCGGCTAGACAGCCCTTATATAGGTATCAGGTTGACAGTCAAGCAATGGCTTTAGCCGAGATATACTAAGG 2881
2881 GTTGTATTTGACCTT

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