Nucleotide sequence of the gene encoding the *RsrI* methyltransferaseFrank H. Stephenson and Patricia J. Greene^{1*}

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We have previously determined the DNA sequence of the *Rhodobacter sphaeroides* gene encoding the *RsrI* endonuclease, an isoschizomer of *R-EcoRI* (1). Sequence analysis of pUC-X7, which contains the endonuclease gene, has been extended (Fig. 1). A large open reading frame, which can encode a 35,660 dalton protein, begins 83 bases downstream from the endonuclease termination codon. The deduced amino acid sequence contains a tetrapeptide motif, DPPY, which is characteristic of adenine methyltransferases. Kaszubska et. al have independently obtained a clone from *R. sphaeroides* and proved that it encodes the *RsrI* methyltransferase (2). The nucleotide and amino acid sequences obtained from the separate clones are identical. *R. sphaeroides* plasmid DNA and total genomic DNA were probed with pUC-X7 (which contains the *RsrI* genes). The results shown in Fig. 2 establish a chromosomal location for the *RsrI* genes.

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catatgGACTTTCGCGCGAAGAAGCGTGCATGGTCCACAGGTGACGCAAGACAGACAGAAGGTAGCACCACGAATGGC100
CGGGCCACCGGAGCGATGAACGCTCTCCGCAAGTCAGGCCAAAGCATTCTCGTCCGAGTCTCAGTTGGGATCTTCGAGATCGGAACACACGACATGTGT200
ATGACGTTTGGATTGCCCTGACACCTTGGCGAAGCTGCCGACGACTCCGTCCAGTTGATCATTGTGATCCTCCATACAAACATCATGTGCGCGGACTG300
GGATGATCAGTGGACTACATCGGCTGGGCGAAGCGATGGTATGCCGAAGCCGAGCGTGTCTATCCCCAACGGGCGAGCATAGCGATTTTCGGCGGCGCTA400
CAATACCAAGGGGAGGCTGGTTCAGGTGATCTGATCTCAATCATTTCGCACATGAGACAAAACAGCAAAATGTGCTCGCAACCTTATCATCTGGAAC500
ATCCGAACGGCATGAGTGGCGAGCGCTTCTTTGCAAAATAGGCACGAGGAATCGCGTGGTTCGCCAAGACCAAGAAGTATTCTTCGATCTTGACGCTGT600
CGGGGAACCATATGACGAGGAACCAAGCCGCTTACATGAAGGACAAGCGGTTGAACCTTGAGTTCGGTTGAAAAGGACGCAACCAACAAACGTGTGG700
CGGATGTCCTCGGCTTAACGGCAATCTCTTGAACGTGTGCGCCACCCACGCAAAAACAGCCGAGTGATTGAGAGACTGGTTCGCGCGTTGTCGCATC800
CGGGTTCAACGGTCTCGATTTTTCGCTGGAAGTGGGTAAACGGCGCGGTTGCAATTCAGAGGGACGGAACAGCATTTCGACTGACGCGCGCTGT900
ATTCAAAGAATATTACCAAGCAGCTAATCTTCTTCAAGATGATGACTGATCGACAAAGCGCGATCATATGAAATGTTGAAGGGGCTGCGAACTTT1000
GGTGCAGCATTCGACGGGGAGATGTTGCTTCAATATGGCGCTGTGCTGCTGCCATAG

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Figure 1. DNA sequence downstream from the *RsrI* endonuclease gene. The overlap is shown in lower case. The start and stop codons of the open reading frame are double underlined.

Figure 2. Autoradiogram of total genomic, *R. sphaeroides* plasmid, and pUC-X7 DNAs applied to nylon membrane in approximately equimolar amounts and hybridized with ³²P labeled pUC-X7 DNA. Lane 1. genome 400 ng, plasmid 30 ng, pUC-X7 1 ng; lane 2. genome 4.0 µg, plasmid 0.3 µg, pUC-X7 0.01 µg.

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