

Nucleotide sequence of *pheW*; a third gene for *E. coli* tRNA<sup>Phe</sup>

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The nucleotide sequence of *pheW*, a third gene for *E. coli* tRNA<sup>Phe</sup>, has been determined. The gene was isolated from an *E. coli* K-12 library as previously described (1), subcloned into M13mp10 and sequenced using the dideoxynucleotide method (2). As observed for the *pheU* (3) and *pheV* (4) genes, the *pheW* gene is organized as a single transcriptional unit, containing a definitive 5' promoter region (-10, -35) and a putative 3' rho-independent terminator (R.I.T.). Although the tRNA coding regions of all three genes are identical, reflecting the presence of a single mature tRNA<sup>Phe</sup> species in *E. coli*, there are several sequence differences in the flanking regions of these genes, with almost no homology in the 3' flanking region.

The cloned *pheW* gene was introduced into a host strain (NP-37) which carries a temperature-sensitive lesion in the gene for the alpha subunit of phenylalanine tRNA-synthetase (*pheS*). In the resulting transformants, tRNA<sup>Phe</sup> was overproduced by 17-fold. This compares to about 11-fold overexpression of the cloned *pheU* and *pheV* genes in NP-37 (3, 4). (Supported in part by NIH-USPHS GM-30400)

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GTCGACACTG CACATCGGCT GGC6GAAGAT ATCCTGC6CT TC6CCGCTGC 50
CGCCAGGTTG GTGCATTGAC CTGACAGAAA CACAGAAAAG AAGCGATTTG 100
CCGCAATCTT AAGCA6TTGA ATCGCTTTTA CTGAAATTAG -35 GTTGACGAGA 150
TGTGCAGATT ACGGTTAAAT -10 GCGCCCCGTT GCCC6GATAG tRNAPhe → CTCAGTC6GT 200
AGAGCAG6GG ATTGAAAATC CCCGTGTCCT TG6TT6GATT CCGAGTCC6G 250
GCACCAAAATT CATATAAACG GACCTCCACG TGTC6TCTCG CGTTTCAGGA 300
CGCCACGATT TAAGCGTTCT GCCTCCAAAT CAATTCTACC GAACTCAACC R.I.T. 350
AGATTCTCCC CACATCACCA GCAATTTGCG GCACTTATCC CAACTTC6GG 400
AAAATTTGTT CCTGAGCTAT AGCACTAACT GACGTGAAAT GTCGT6CGGC 450
CCCGTGATGC T6TTGACGTC AATGACGTCA TCAGGAGCGT AC 492

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