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A gene for the major cytoplasmic tRNA^{Tyr} from *Nicotiana rustica* contains a 13 nucleotides long intron

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Tobacco leaf nuclear DNA was isolated from pure nuclei via protoplasts (1). A λ library prepared by Eco RI-digestion, ligation of the fragments into a λ vector and in vitro packaging (2), was screened with a 5'-^{32}P-labeled synthetic oligodeoxynucleotide complementary to nts. 18-37 of tRNA^{Tyr} from tobacco leaves (3). A hybridizing Eco RI-fragment of about 3 kbp from a recombinant λ phage, subcloned in pUC19, yielded the recombinant plasmid pNtT1. The sequence of the tRNA^{Tyr} gene and of its flanking regions are shown below (non-coding strand; gene boxed; intron underlined):

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                -60                -40                -20
TTCTCAAAAT CTTTATTCTT AATACTAATA CGAATGTGGA CGACTTCTAT ATAGGTATGA GATTAGAGTA
          1                  21                 41
TCTCGCAAGA CCGACCTTAG CTCAGTTGGT AGAGCGGAGG ACTGTAGTGG TACTGCTGAG ATCCTTAGGT
61                81                101                121
CACTGGTTCG AATCCGGTAG GTCGGATTTT GTTTTTCTGT GTTCTTTGCT TTTTCATTTC ATCATCAAAA
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This is the first nuclear plant tRNA gene for which a corresponding tRNA is known: its sequence is colinear with one of the two major cytoplasmic tRNAs^{Tyr} of Nicotiana (3). Special features of this gene are a 13 nucleotides long intron and a $(T)_4G(T)_5$ transcription termination signal immediately following the tDNA. This gene is efficiently transcribed and correctly spliced in a HeLa cell nuclear extract (van Tol et al., in preparation).

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