Molecular cloning of a cDNA from *Lupinus polyphyllus* cell cultures encoding a ribosomal protein (*rps16*)

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A cDNA library was constructed from poly(A)* RNA of suspension-cultured cells of *Lupinus polyphyllus* using pUC19 as a vector system [1]. While screening this library for peroxidase genes [2], we isolated and sequenced one cDNA clone (pPLZ9) which apparently encodes a ribosomal protein [3]. This clone is 588 bp long and has an open reading frame starting at position 5 and terminating at position 444 (Fig. 1). A search in the protein and gene data bases (EMBL, GenBank, NBRF, Swissprot) revealed significant homologies to the ribosomal protein S16 of mouse (Fig. 2) and the corresponding genes and 'pseudo-genases' [4, 5]. At the DNA level pPLZ9 shows homologies of 64% and 66% to the *rps16* gene or *rps16* pseudogene of mouse. The amino acid sequence of the deduced ribosomal protein (position 50 to 145) has an homology of 89.6% for

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 1  GC AAA ATG GCG ACC GAC CAG CAC TCG AAC AAG TCC AAT GTT TCG  44
    Met Ala Thr Asp Gin His Ser Asn Lys Ser Val Ser  

 45  GCC GCA AGA AAA CCG CTG TCG CCg TCA CCT ACT GCA AGC GCG GCC  89
    Ala Ala Arg Ala CCG CTG TCG CCg TCA CCT ACT GCA AGC GCG GCC  

 14  Ala Ala Arg Lys Pro Leu Ser Pro Ser Pro Thr Ala Ser Ala Ala  28

 90  GGT CTT ATC AAG ATC AAT GGT TCT CCA ATC GAG CTC GTC GAA CCA  134
    Gly Leu Ile Lys Ile Asn Gin Ser Pro Ile Gin Leu Val Gin Pro  

 29  Gly Leu Ile Lys Ile Asn Gin Ser Pro Ile Gin Leu Val Gin Pro  43

135  GAA ATC CTC CGG TCC AAG GCC TTC GAA CCA ATC CTC CTT TTG GGG  179
    Glu Ile Leu Arg Phe Lys Ala Phe Glu Pro Ile Leu Leu Leu Gly  

 44  Glu Ile Leu Arg Phe Lys Ala Phe Glu Pro Ile Leu Leu Leu Gly  58

180  AAA TCA CGA TTC GCC GGT GTG GAC ATG AGG ATC CGC GTC GAA GGT  224
    Lys Ser Arg Phe Ala Gin Ser Gin Gin Gin Gin Gin Gin Gin Gin Gin  

 59  Lys Ser Arg Phe Ala Gin Ser Gin Gin Gin Gin Gin Gin Gin Gin Gin  73

225  GGT GTTCAC ACT TCC CAG ATC TAT GCC ATA AGG CAG GGT ATT GGT    269
    Gly Gly His Gin Gin Gin Gin Gin Gin Gin Gin Gin Gin Gin Gin Gin  

 74  Gly Gly His Gin Gin Gin Gin Gin Gin Gin Gin Gin Gin Gin Gin Gin  88

270  AAG GCA CTC GTG TCG TTC TAC CAG AAG TAC GTT GAT GAA CAG AGC  314
    Lys Ala Leu Val Ala Phe Tyr Gin Gin Gin Gin Gin Gin Gin Gin Gin  

 89  Lys Ala Leu Val Ala Phe Tyr Gin Gin Gin Gin Gin Gin Gin Gin Gin 103
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The nucleotide sequence data reported will appear in the EMBL, GenBank and DDBJ Nucleotide Sequence Databases under the accession number X51766.
the rps16 pseudogene and 52.1% for the rps16 gene (Fig. 2), which is interesting from an evolutionary point of view.

RNA was isolated from plant (roots, stems, leaves of a non-flowering lupin) and cell suspension cultures and hybridized with pPLZ9. A ubiquitous expression was observed in both cell culture and all organs of the intact plant. pPLZ9 also hybridized with RNA isolated from Drosophila hydei and Sorghum vulgare, indicating that the expression of this ribosomal gene is essential for eukaryotes.

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References