Primary structure of *Trichoderma harzianum* ribosomal protein L32

José M.Lora, Irene García, Tahía Benítez[1], Antonio Llobell[2] and José A.Pintor-Toro*
Instituto de Recursos Naturales y Agrobiología, CSIC, Apdo. 1052, E-41080, Seville, [1]Dpto. de Genética, Fac. de Biología and [2]Instituto Bioquímica Vegetal y Fotosíntesis, Universidad de Sevilla, Spain

Received May 28, 1993; Accepted June 1, 1993 EMBL accession no. X71914

Eukaryotic ribosomal proteins (rp) are found to be arranged in relatively large (8 to >20 member) families of unlinked genes. These families are usually composed by a single intron(s)-containing expressed gene, and a number of processed, silent genes (1). One of the most studied of these families, L32, has been shown to be highly conserved among the organisms where it has been identified, i.e, mouse, human and flies (2, 3, 4, 5), but no information was available regarding the lower-eukaryote counterparts. While screening for another gene in a cDNA library from the filamentous fungus *Trichoderma harzianum*, we isolated a clone whose deduced amino acid sequence showed high homology (around 50% identity) with L32 rp from mouse, human, *Drosophila melanogaster* and *D.subobscura* (Figure 1). The cDNA is 562 bp in length and codes for a 137-amino-acid polypeptide. This deduced protein, termed TrpL32, is very rich in basic residues (pI = 12.41) and quite hydrophobic (data not shown) which is in agreement with the information related with the other L32 rp studied so far. From Southern analysis (data not shown) we have seen that this protein is encoded by a single gene or by several very highly homologous ones grouped in a 6 kb *Hin*dIII genomic fragment.

The expression pattern of the mRNA was investigated by Northern blotting of total mRNA and resulted in a constitutive transcription of the TrpL32 gene.

To our knowledge, this is the first gene of L32 rp from a lower eukaryote so far reported and shows a striking similarity with those from the higher ones.

REFERENCES

1. Dudov,K.P. and Perry,R.P. (1984) *Cell* **37**, 457–468.
2. Rajchel,A., Chan,Y.-L. and Wool,I.G. (1988) *Nucleic Acids Res.* **16**, 2347.
3. Jacks,C.M., Riltz,R.F. and Hackett,P.B. (1988) *Nucleic Acids Res.* **16**, 10751–10764.
4. Jacks,C.M., Powaser,C.B. and Hackett,P.B. (1988) *Gene* **74**, 565–570.
5. Young,J.A.T. and Trowsdale,J. (1985) *Nucleic Acids Res.* **13**, 8883–8891.

```
          1                                                  50
Rphuman   AALRPLVKPK IVKKRTKKFI RHQSDRYVKI KRNWRKPRGI DNRVRRRFKG
Rpmouse   AALRPLVKPK IVKKRTKKFI RHQSDRYVKI KWNWRKPRGI DNRVRRRFKG
Rpdrosu   MTIRPAYRPK IIKKRTKHFI RHQSDRYAKL SHKWRKPKGI DNRVRRRFKG
Rpdrome   MTIRPAYRPK IVKKRTKDFI RHQSDRYAKL SHKWRKPKGI DNRVGRRFKG
Rptricho  .MVAAKKHVP IVKKHKTTFA RHQSDRFDRC RFQLEKAQGI DGRVRRRFRG

          51                                                 100
Rphuman   QILMPNIGYG SNKKTKHMLP SGFRKFLVHN VKEL....EV LLMCNKSYCA
Rpmouse   QILMPNIGYR SNKKTKHTLS SGFRKFLVHN IKEP....EV LLMCNKSYRA
Rpdrosu   QYLMPNIGYG SNKRTRHMLP TGFKKFLVHN VREL....EV LLMQNRIYCG
Rpdrome   QYLMPNIGYG SNKRTRHMLP TGFKKFLVHN VREL....EV LLMQNPRLLR
Rptricho  TIRMPKIGYG SNKKTRFLTP SGHNAFL.HN ARTLSCAAGC SMQSTDPSAA

          101                                          141
Rphuman   EIAHNVSSKN RKAIVERAAQ LAIRVTNPNA RLRSEENE.. .
Rpmouse   EIAHNVSSKN RKAIVERAAQ LAIRVTNPNT RLHSEENE.. .
Rpdrosu   EIAHAVSSKK RKEIVERAKQ LSIRLTNPNG RLRSQENE.. .
Rpdrome   EMPTA.SPPR SKEIIERAKQ LSVRSPTPTV ACVSRRTR.. .
Rptricho  EIATPVSSRK RIA.SSPARQ ADRCSRSRRS KFRPRRLRAS
```

Figure 1. Sequence comparison of TrpL32 with several homologous proteins from other organisms. The cDNA sequence is available at the EMBL sequences data base under accession no. X71914.

* To whom correspondence should be addressed