Human ribosomal protein S20 cDNA sequence

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Received February 10, 1993; Accepted March 5, 1993 GenBank accession no. L06498

The mammalian ribosome is a complex system which is comprised of four ribosomal RNA molecules and as many as 80 ribosomal proteins. Determining the primary structure of the ribosomal components is important for understanding its role in protein synthesis. A cDNA clone which encodes human ribosomal protein S20 has been isolated from a cDNA library constructed using poly (A^+) RNA from human dermal vascular endothelial cells. The 505 nucleotide-long cDNA insert of the human ribosomal protein S20 clone consists of 113 nucleotides of 5′ noncoding sequence, a 360 nucleotide open reading frame, and 32 nucleotides of the 3′ untranslated region, followed by a 40 bp poly A tail. The presumed polyadenylation signal, AATAAA, is located at bases 486–491. Nucleotide sequence comparison over the open reading frame exhibits a 91% sequence homology to that of rat ribosomal protein S20 (1). The amino acid sequence deduced from the open reading frame encodes a protein of 119 amino acid residues which is identical to the rat S20 amino acid sequence. The highly conserved primary structure of ribosomal proteins across species has been observed for many other known ribosomal proteins (2). The size of the mRNA of human ribosomal protein S20 is approximately 650 bp as demonstrated by Northern analysis. Southern blot analysis of human genomic DNA shows multiple hybridization bands (11–13 bands), suggesting that human ribosomal protein S20 may be a member of a multigene family.

ACKNOWLEDGEMENTS

We would like to thank Joe Levine and J.Douglas Larigan for performing DNA sequencing.

REFERENCES

1. Chan,Y.L. and Wool,I.G. (1990) *Biochim. Biophys. Acta* **1049**, 93–95.
2. Wool,I.G. (1979) *Annu. Rev. Biochem.* **48**, 719–154.

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Human      1  AAGACGCGGTCGTAAGGGCTGAGGATTTTTGGTCCGCACGCTCCTGCTCC
Rat           T.C.TGCT.TGGAGCCTTGT.AAGTCTG.TCTG...

Human     51  TGACTCACCGCTGTTCGCTCTCGCCGAGGAACAAGTCGGTCAGGAAGCCC
Rat           .....CT..T.....-..TA

                  M  A  F  K  D  T  G  K  T  P  V  E  P
Human    101  GCGCGCAACAGCCATGGCTTTTAAGGATACCGGAAAAACACCCGTGGAGC
Rat           ---...CT.....A.....A.....G..G.....

               E  V  A  I  H  R  I  R  I  T  L  T  S  R  N  V
Human    151  CGGAGGTGGCAATTCACCGAATTCGAATCACCCTAACAAGCCGCAACGTA
Rat           .C..A.....G.....G.....G..C..C.....G

               K  S  L  E  K  V  C  A  D  L  I  R  G  A  K  E  K
Human    201  AAATCCTTGGAAAAGGTGTGTGCTGACTTGATAAGAGGCGCAAAAGAAAA
Rat           ..G..GC.....T.....G.....C.....G..G..

               N  L  K  V  K  G  P  V  R  M  P  T  K  T  L  R  I
Human    251  GAATCTCAAAGTGAAAGGACCAGTTCGAATGCCTACCAAGACTTTGAGAA
Rat           ......G.....G..C.....AC......

               T  T  R  K  T  P  C  G  E  G  S  K  T  W  D  R
Human    301  TCACTACAAGAAAAACTCCTTGTGGTGAAGGTTCTAAGACGTGGGATCGT
Rat           .......C.....C.....C.....C.....

               F  Q  M  R  I  H  K  R  L  I  D  L  H  S  P  S  E
Human    351  TTCCAGATGAGAATTCACAAGCGACTCATTGACTTGCACAGTCCTTCTGA
Rat           .....C.....A.....A..

               I  V  K  Q  I  T  S  I  S  I  E  P  G  V  E  V  E
Human    401  GATTGTTAAGCAGATTACTTCCATCAGTATTGAGCCAGGAGTTGAGGTGG
Rat           .....T.....G.....T.

               V  T  I  A  D  A  End
Human    451  AAGTCACCATTGCAGATGCTTAAGTCAACTATTTTAATAAATTGATGACC
Rat           .....C.....T.AAAAATA

Human    501  AGTTA(n)
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Figure 1. Nucleotide and deduced amino acid sequences of the human ribosomal protein S20 cDNA and comparison with the rat S20 nucleotide sequence. The dot represents identity with the human sequence and dashes are introduced to achieve maximum alignment. The presumed polyadenylation signal AATAAA is underlined.

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