Online journal ISSN - 1676-5680
GMR Genetics and Molecular Research
EVOLUTION AND TECHNOLOGY

cDNA, genomic sequence cloning and overexpression of the ribosomal protein S13 gene in the giant panda (*Ailuropoda melanoleuca*)

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Genet. Mol. Res. 10 (1): 121-132 (2011)
Received August 4, 2010
Accepted November 1, 2010
Published January 25, 2011
DOI 10.4238/vol10-1gmr1000

ABSTRACT. The cDNA and the genomic sequence of ribosomal protein S13 (*RPS13*) of the giant panda (*Ailuropoda melanoleuca*) was cloned using reverse transcription-polymerase chain reaction (RT-PCR) and touchdown-PCR, respectively. These two sequences were sequenced and analyzed, and the cDNA of the *RPS13* gene was overexpressed in *Escherichia coli* BL21. We compared the nucleotide sequences of the coding region and the amino acid sequences with those of seven other mammalian species retrieved from GenBank. The cDNA fragment of the *RPS13* cloned from the giant panda is 496 bp in size, containing an open-reading frame of 456 bp, encoding 151 amino acids. The length of the genomic sequence is 2277 bp, with five exons and four introns. The coding sequence shows a high degree of homology to those of *Homo sapiens*, *Bos taurus*, *Canis lupus familiaris*, *Macaca mulatta*, *Mus musculus*, *Rattus norvegicus*, and *Pan troglodytes*; the degree of homology was 91.23, 94.30, 94.74, 92.11, 87.94, 87.72, and 91.45%, respectively. The homologies for the deduced amino acid sequences reached as high as 99%. Primary structure analysis revealed that the molecular weight of the puta-

tive RPS13 protein is 17.22325 kDa, with a theoretical pI of 10.42. Based on topology prediction, there is one protein kinase C phosphorylation site, one casein kinase II phosphorylation site, two N-myristoylation sites, and one ribosomal protein S15 signature in the RPS13 protein of the giant panda. The *RPS13* gene can be expressed in *E. coli* and the RPS13 protein fused with the N-terminally GST-tagged form, which gave rise to the addition of an expected 43-kDa polypeptide.

Key words: Giant panda; *Ailuropoda melanoleuca*; *RPS13* gene; cDNA cloning; Sequence analysis; Overexpression

