36B4 cDNA used as an estradiol-independent mRNA control is the cDNA for human acidic ribosomal phosphoprotein PO

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36B4 is a human cDNA clone originally isolated by the group of P.Chambon (1) in 1982, from a differential cDNA library of estradiol stimulated versus non stimulated MCF-7 breast cancer cells. Because 36B4 mRNA levels are not modified by estradiol treatment, this cDNA probe is widely used as a control in RNAse protection experiments to study the regulation by estradiol of the transcription levels of several genes. So far, the identity of 36B4 was unknown. In an attempt to identify 36B4, partial sequencing of a PstI−PstI cDNA fragment of 36B4 subcloned in the plasmid pGEM 4Z (Promega, Madison, WI) was performed by the method of Sanger *et al.* (2), and the T7 promoter oligonucleotide (Promega) as a primer. Homology search of the Genbank and EMBL sequence databases was performed by using the program FASTA, created by Lipman and Pearson (3), accessed through the University of Wisconsin Genetic Computer Group (UWGCG) software package. Figure 1 shows that the 158 bp sequenced from the PstI−PstI fragment of 36B4 are identical to part of a PstI−PstI fragment of the human acidic ribosomal phosphoprotein PO cDNA (4) (Genbank accession number M17885), which can be found from position 760 to 956 (indicated in the figure). The 158 bp fragment of 36B4 shows also 88.5% homology with the mouse PO cDNA (5) (Genbank accession number X15267) and 87.8% with the rat PO cDNA (6) (Genbank accession number X15096). Those facts, taken together, leave little doubt about the identity of 36B4. This identity can give some insight on why the 36B4 mRNA levels are unmodified by estradiol, given the fact that the PO protein levels seem to be under translational control (5). Since mouse and rat PO cDNAs are also cloned, researchers may now obtain riboprobes from those cDNAs to be used as identical controls in studies of transcriptional regulation in these species.

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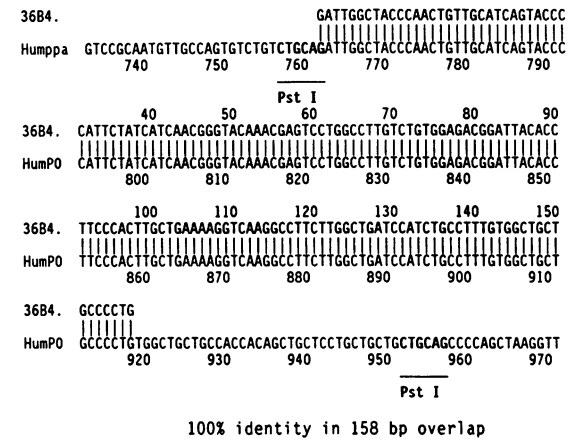

Figure 1. Alignment between the partial sequence of a PstI−PstI fragment of 36B4 and the human acidic ribosomal protein PO obtained with the program FASTA (3).