A processed gene homologous to the thymidine kinase (TK) gene in Chinese hamster cells

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Southern blot analysis of the TK gene in RJK92 Chinese hamster cells revealed a restriction pattern consistent with the presence of one processed pseudogene and one intron-containing gene. When probes containing an exon were hybridized to restriction endonuclease digests of RJK92 DNA, two bands were obtained (Figure 1A). However, probes containing only introns or nontranscribed regions revealed single bands (Figure 1B). When double digests of RJK92 DNA were hybridized to exon-containing probes, we detected fragments whose sizes were predicted by the TK cDNA map (data not shown). By combining the results of these Southern blot experiments with the restriction map of the TK cDNA, we constructed a map of the processed gene (Figure 2).

Figure 1. Analysis of the TK gene in RJK92 cells with hybridization probes from the seventh exon (A) and fifth intron (B). The probes and methods used are presented in Ref. 1. Similar results were obtained using probes containing the first exon, first intron, and 5' and 3' nontranscribed regions.

Figure 2. Structure of the processed gene. The shaded region corresponds to the cloned cDNA which was mapped as described in Ref. 1.

Flanking restriction sites were mapped by Southern blot experiments. (B - BamHI, Bg - BglI, E - EcoRI, H2-HincII, H3 - HindIII, N - NcoI, P2 - PvuII, S1 - SstI, X - XmnI).

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REFERENCES - 1. Barr, F.G., Rajagopalan, S., MacArthur, C.A., and Lieberman, M.W. (1986) *Mol. Cell. Biol.* **61**, 3023 - 3033.