The *Psx* Homeobox Gene is X-Linked and Specifically Expressed in Trophoblast Cells of Mouse Placenta

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We have previously isolated a cDNA clone for a homeobox-containing gene that its expression was shown by Northern blot analysis to be restricted to the extraembryonic tissues. In this study, Psx gene expression was further examined using $in\ situ$ hybridization to determine the cellular distribution of Psx transcripts during embryo development. Psx expression was trophoblast-specific and restricted to the giant cells and labyrinthine trophoblast layer. In addition, the gene expression was detected in differentiated Rcho-1 trophoblast cells $in\ vitro$, which is typical of trophoblast giant cells $in\ vivo$, but not in proliferating Rcho-1 cells and HRP-1 cells. Zoo blot analysis revealed that the Psx gene was detectable only in mouse and rat but not in other vertebrate species tested. Psx was localized to the murine X chromosome.

Zbo2 Identification of a New Member of Trophoblast-Specific Homeobox Gene, *Psx-2*

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Psx (Psx-1) is a trophoblast-specific homeobox gene. We have isolated a second Psx gene, named Psx-2, from the mouse conceptus cDNA library. Overall sequence identity between Psx-1 and Psx-2 was 91% at the nucleotides and 81% at the amino acids. Both genes contain 227 amino acids. Genomic sequence analysis revealed that Psx-2 gene composed of four exons and three introns spanning approximately 2.6kb. The 5'-flanking region of Psx-2 contained a putative TATA box and other transcription factor binding sites such as Sp1, CP2 and Est-2. The transcription start site was determined by primer extension analysis. A transient-transfection analysis using a luciferase reporter gene showed that Psx-2 promoter could confer a high basal transcriptional activity in both Psx-producing and non-producing cells.