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Isolation of root-specific ns-LTP-like gene from *Phaseolus vulgaris* L.

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We had previously isolated cDNA clone, PVR3 encoding root-specific ns-LTP (non specific lipid transfer protein) like protein from Bean (*Phaseolus vulgaris* L.). In this study we isolated genomic DNA corresponding to PVR3 cDNA by IPCR (inverse PCR) method. On the basis of Sourthern blot analysis, the genomic DNA was digested with *Hin*dIII, self-ligated, digested with *Bam*HI and used as template for IPCR. Primers for IPCR were designed towards sequence at the 5'-end of coding region. IPCR product contains a coding region identical with that of PVR3 cDNA and no intron is revealed. A putative TATA box is located at position -69 and several palindromes and tandem repeat sequences are present. There is also one TGACG motif which are known as the root-specific sequence of CaMV 35S. Further analysis of PVR3 promoter is in progress by construction the transgenic plants which have 5'-flanking region combined with the GUS reporter gene.

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Isolation of a Root-Specific cDNA Encoding an ns-LTP-Like Protein from the Roots of Bean (*Phaseolus vulgaris* L.) Seedlings

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A root-specific cDNA clone, PVR3 was isolated from a bean (*Phaseolus vulgaris* L.) root cDNA library by a differential screening procedure. The nucleotide sequence of PVR3 includes an open reading frame coding for an 11.14 kDa polypeptide of 102 amino acid residues; the first 25 amino acids correspond to the sequence characteristic of a signal peptide. Comparison of the deduced PVR3 polypeptide sequence with the polypeptide sequences of previously cloned genes indicates that PVR3 may encode an ns-LTP-like protein. Molecular modeling of the PVR3 protein predicts that it has a three-dimensional structure that is similar to the three-dimensional model determined from the maize ns-LTP. The PVR3 mRNA accumulated mainly in the seedling root. It can be detected at low levels in flowers, but it is not detected in other organs. PVR3 mRNA accumulation is developmentally regulated within the root, with higher levels in the apical region and low levels in the mature region of the root. *In situ* hybridization shows that PVR3 mRNA specifically accumulates in the cortical cellular layer of apical region. Genomic Southern blot analysis indicates that the genomic DNA corresponding to PVR3 cDNA is encoded by a single gene in the bean genome.