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Molecular cloning of a phosphotriesterase-related protein gene of silkworm and its expression analysis in the silkworm infected with Bombyx mori cytoplasmic polyhedrosis virus

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Author(s)

Xiu Wang, Kun Gao, Ping Wu, Guangxing Qin, Ting Liu, Xijie Guo

ABSTRACT

Bombyx mori cytoplasmic polyhedrosis virus is one of the major viral pathogens for the silkworm. The immune response of silkworm to the virus infection is obscure. A phosphotriesterase-related protein gene of silkworm, Bombyx mori (BmPTERP) was found in our previous microarry analysis of the midgut infected with the virus. In the present study, we cloned and analyzed the full-length cDNA of BmPTERP gene by means of rapid amplification of complementary DNA ends (RACE) and bioinformatic analysis for exploring its functions in interaction between the silkworm and the virus. The nucleotide sequence of the gene is 1349-bp and contains a 131 bp 5 ' UTR and a 165 bp 3 ' UTR. The 1053 bp open reading frame encodes a 350 amino acid protein. The deduced protein contains specific hits of phosphotriesterase-related proteins and belongs to the amidohydrolase superfamily. RTPCR analysis revealed that BmPTERP gene was expressed in all the tissues tested, including midgut, hemocyte, gonad, fat body and silk gland. Real-time quantitative polymerase chain reaction analysis indicated that the relative transcript of BmPTERP gene in the infected midgut was 19.32 fold lower than that in normal midgut at 72 hours post inoculation.

KEYWORDS

Silkworm; Cytoplasmic Polyhedrosis Virus; Phosphotriesterase-Related Protein; Gene

Cite this paper

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