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Cloning of a gene for lectin in Korean mistletoe (*Viscum album* L. *coloratum*)

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Objectives

Molecular cloning and expression of a gene for Lectin in Korean Mistletoe

Materials and Methods

1. Material:

E. coli strains DH5, BL21(DE3)

Vectors pGEM-T easy vector, pRSET A vector

2. Methods:

A full gene for Lectin of Korean Mistletoe (KML) was cloned by PCR. A- and B-chain genes were subcloned. The three type genes were expressed in *E. coli*.

Results and Discussion

Korean Mistletoe Lectin (KML), the major active constituent of mistletoe extracts, has been widely used for cancer therapy. Its full gene is consisted of two chains; A- and B-chain. The A-chain has an enzymatic activity, while the B-chain has a role of a signal polypeptide. The complete full gene has been isolated by RT-PCR with gene-specific primers. The gene fragments for A- and B-chains were also individually cloned. These genes (DNA fragments) have been cloned into pGEM-T easy vector, respectively. The numbers of nucleotides of A-, B-chain and full lengths cDNAs were 747, 792 and 1692 nucleotides in order. The sequences of cDNAs were highly homogeneous with those for European Mistletoe Lectin (EML). The three cDNAs were subcloned in pRSET A vectors. The recombinant clones were well expressed in *E. coli* BL21(DE3). The molecular weights of the A-, B-chain, and lectin were 30,300, 31,400, and 61,000 daltons, respectively on SDS-PAGE.

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