RECOMBINANT PROTEIN PRODUCTION IN *Escherichia coli* BY COMBINING OF SIGNAL PEPTIDE ORIGINATED FROM *Bacillus subtilis*

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We isolated chitosanase secreting B. subtilis CH2 and identified the chitosanase nucleotide sequence. Analyzed the sequence showed that it consisted of 813 bp, including 87 bp signal sequence. The signal sequence leads the target protein to the cell-membrane of the B. subtilis CH2 and then secret the chitosanase out of the cell. The signal peptide showed 6 amino acids deletion compared to other B. subtilis chitosanase signal peptides. The chitosanase sequence including signal peptide was cloned into pET11a vector without fusion and expressed in E. coli BL21(DE3). The expressed chitosanase in E. coli showed two distinct bands which represent the pro-chitosanase in cytoplasm and mature chitosanase in periplasm. Time frame induction and results showed that muture chitosanase was increased. Subsequently, we linked this chitosanase signal sequence in front of B. subtilis CH2 xylanase and human superoxide distimutase 1 (hSOD1) sequences, and expressed it in E. coli BL21(DE3). The recombinant xylanase and hSOD1 moved to periplasmic space with high efficiency. This signal sequence is useful for bio-medical protein production in E. coli.

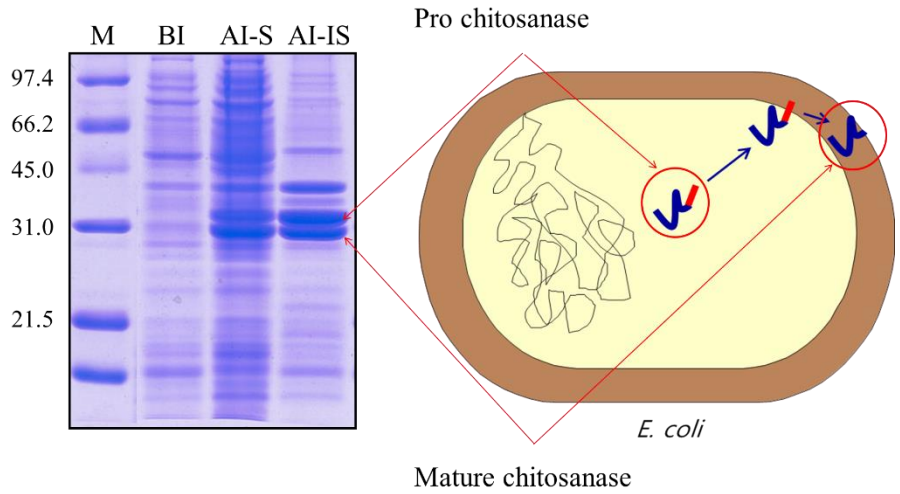

Figure 1. SDS-PAGE analysis of chitosanase expression in E. coli BL21(DE3). M; marker, BI; total cell lycete before induction, AI-S; soluble protein after induction, AI-IS; insoluble protein after induction