

Rv1886c gene expression for the production of mycobacterium tuberculosis major secreted protein antigen 85B in escherichia coli / Napassorn Chamchoi, Krittika Rudeejaronrung, Thanchanok Nantamas, Ponchanok Suwan, Suparwadee Lormlek, Varittha Sritalaharauthai, Siwarutt Boonyarattanakalin

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Abstrak

Tuberculosis (TB) is one of the major infectious diseases that cause health problems worldwide. Antigen 85B is a secreted protein of the infectious strain *Mycobacterium tuberculosis*. Our main focus is on production of proteins as a booster vaccine to replace the traditional *Mycobacterium bovis* bacillus Calmetter-Guerin (BCG) vaccine formula. The main challenge is to express a high yield of an active recombinant protein in native soluble form. To the extent of our knowledge, the cultivation conditions, such as optimal temperature, for overexpressing soluble Ag85B protein of the gene Rv1886c, have never been reported. This study showed for the first time the optimizing culturing conditions for inducing expression of soluble Ag85B protein by isopropyl  $\beta$ -D-1-thiogalactopyranoside (IPTG) in *Escherichia coli* BL21 (DE3) pLysS. Protein yields were higher at a low temperature of 25 °C (for 12 h), compared to those at a high temperature of 37 °C (for 5 h). To conclude, low temperature is associated with slow expression which allows the protein to adopt a well-folded conformation and provides a high yield of soluble recombinant protein.