Cellular engineering for the efficient production of Immunoglobulin G (IgG) antibody in *Escherichia coli*

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Due to high specificity and affinity to target antigen, immunoglobulin G (IgG) antibody has been considered as the most important therapeutic proteins. However, because of glycosylation, most antibody therapeutics have been produced in mammalian hosts and these cause the high cost and poor supply to patients. Even though recent development of aglycosylated antibodies which have effector functions without glycosylation allows the use of *E. coli* as a host cell for antibody production, still the poor expression and inefficient assembly of IgG in *E. coli* is remained as a problem to be solved. In this study, we developed the host-vector system for the efficient production of recombinant IgG against anthrax toxin PA. First, several *E. coli* strains were examined to choose the proper host strain, and different promoters and leader peptides were also examined for the efficient secretion of both heavy and light chains into periplasm of *E. coli*. Finally co-expression of various factors like as periplasmic chaperones and foldases were examined to improve the assembly of both chains into full-length IgG in periplasm.