Optimization studies of expression of human sg1 gene.

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ABSTRACT

Biopharmaceutical drugs are mainly recombinant proteins produced by biotechnological tools. The patents of many biopharmaceuticals have expired and bio similar is thus currently being developed. Human SG1 is a hematopoitic cytokine that acts on cells of the neutrophil lineage causing proliferation and differentiation of committed precursor cells and activation of mature neutrophils . Recombinant human SG1 has been produced inb genetically engineered Escherichia coli and successfully used to treat cancer patients suffering from chemotherapy – induced neutropenia. Human SG1 is a 175 a. a. protein containing an extra N- terminal methionine, which is needed for expression in E.Coli. Here we have done the optimization conditions for better production of Human SG1 in a simple and low cost process i.e amenable to scaling up for the production and purification of homogenous and active recombinant human SG1 expressed in E.Coli cells. The “Optimization Studies of Expression of Human SG1 Gene” The Protein shows good Expression in TB media . LB and TB media used for the comparison of the Expression of the Protein. Its shows some variations. i.e In Un induced samples also shows a protein band at 18.6 KD of the protein in TB media, it might be due to leaky expression of the protein by lac uv5promotor and other host cell proteins also more in TB induced medium Because it contains rich nutrients when compared to LB media.The recombinant Human SG1 expression was successfully optimized with Different cell densities (OD’s) and Temperature conditions in two different media, a distinct induced protein band was seen on 12% SDS PAGE Gel with 0.2 and 0.5 mM inducer (IPTG) concentration at 18.6KDa. Hence, this Human SG1 protein will be used for further physiochemical, Immunological and biological analysis (characterization studies.) and finally will useful to develop therapeutic bioproducts.

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