Cloning of Minor Autolysin of Streptococcus Pneumoniae

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Abstract

Background and Objective: Increased antibiotic resistant strains and inadequacy of current vaccines against pneumococcal infections necessitate the study of novel protein antigens. It seems that minor autolysin of *Streptococcus pneumoniae* may have antigenicity. Thus, we aimed at cloning its gene for the first time.

Material and Methods: After DNA extraction of *Streptococcus pneumoniae* (ATCC 49619), Specific primers were designed for amplifying minor autolysin gene fragment, using PCR. The purified gene fragment was inserted into pET21a vector and was transformed into bacterial competent cells by heat shock technique. The presence of gene and absence of mutation in the recombinant vector were checked out with sequencing and enzymatic digestion methods. The gene sequence was finally analyzed by bioinformatic tools.

Results: The gene of minor autolysin was cloned successfully and the result of enzymatic digestion was the indication of complete isolation of this gen from plasmid. . Bioinformatics studies revealed that the mature protein was lacking signal peptide and the gene encoded 318 amino acids with a molecular weight of 36.4 kDa.

Conclusion: The presentation and characterization of novel antigens such as minor autolysin could help us with finding new approaches for preventing and controlling pneumococcal infection.

Keywords: *Streptococcus Pneumoniae,* Minor Autolysin, Cloning

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