

عنوان مقاله:

Cloning and Expression of Mannheimia haemolytica PlpE Gene in Escherichia coli and its Immunogenicity Assessment

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خلاصه مقاله:

Mannheimia haemolytica is responsible for considerable economic losses to cattle, sheep, and goat industries in many parts of the world. This bacterium is one of the causative agents of shipping fever in cattle. Current vaccines against M. haemolytica are moderately efficacious since they do not provide complete protection against the disease. Production of an economic vaccine for protecting farm animals against M. haemolytica has attracted the attention of many scientists. The outer membrane proteins (OMPs) play a major role in the pathogenesis and immunogenicity of M. haemolytica. Research on M. haemolytica OMPs has shown that antibodies to a particular OMP may be important in immune protection. In the current study, the gene for M. haemolytica OMP PlpE was cloned into the expression vector pET29-b, and then expressed in Escherichia coli BL21. The expression of the protein was carried out by the induction of cultured Escherichiacoli BL21 cells with 1mM isopropyl-β-D-thiogalactopyranoside. The recombinant PlpE was purified using Ni-NTA agarose resin, and then subjected to sodium dodecyl sulfate polyacrylamide gel electrophoresis. The identity of the expressed protein was analyzed by western blotting. It was revealed that rPlpE was expressed and produced properly. To assess the immunogenicity of the recombinant protein, the purified rPlpE was used as an antigen for antibody production in goats. The observations suggested that the produced recombinant protein can be used as a antigen for developing diagnostic tests and or as a vaccine candidate.

کلمات کلیدی:

Mannheimia haemolytica, PlpE, Cloning, Expression, Immunogenicity

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