

Production of Recombinant VP2 Protein of Canine Parvovirus Type 2c Using Baculovirus Expression System

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Abstract : Canine parvovirus (CPV) is a major pathogen of diarrhea disease in dogs. CPV type 2 has three of antigenic variants such as 2a, 2b, and 2c. CPV constructs a small non-enveloped, icosahedral capsid that contains single-stranded DNA. It has capsids that two largely overlapping virion proteins (VP), VP1 (82 kDa), and VP2 (65 kDa). Baculoviruses are insect pathogens that regulate insect populations in nature and are being successfully used to control insect pests. The proteins produced in the baculovirus-expression system are used for instance for functional studies, vaccine preparations, or diagnostics. The vaccines produced by baculovirus-expression system showed elicitation of antibodies. The recombinant baculovirus infected SF9 cells showed broken shape. The recombinant VP2 proteins from cell pellet or supernatant were confirmed by western blotting. The result showed that the recombinant VP2 protein bands were appeared at 65 kDa molecular weight in both cell pellet and supernatant of infected SF9 cell. These results indicated that the recombinant baculovirus infected SF9 cell express the recombinant VP2 protein successfully. In addition, the expressed recombinant VP2 protein is secreted from cell to supernatant. The baculovirus expression system can be used to produce the VP2 protein of CPV 2c. In addition, the secretion property of the expression of VP2 protein may decrease the cost of production, because it can be skipped the cell breaking step. The produced VP2 protein could be used for vaccine and the agent of diagnostic tests. This study provides the foundation of the production of CPV 2c vaccine and the diagnostic agent.

Keywords : baculovirus, canine parvovirus 2c, dog, Korea

Conference Title : ICITV 2018 : International Conference on Immunological Techniques and Vaccines

Conference Location : Tokyo, Japan

Conference Dates : September 10-11, 2018