Abstract

Japanese encephalitis virus (JEV) belongs to the family Flaviviridae, genus flavivirus. The JEV genome contains three structural proteins: a core nucleocapsid protein (C), a pre-membrane protein or membrane protein (prM/M), an envelope protein (E), seven nonstructural proteins : NS1?BNS2A?BNS2B?BNS3?BNS4A?BNS4B and NS5 and two nontranslated regions. The E protein is believed to be the major antigen to induce neutralization antibodies and protective immune responses. This study was aimed to establish recombinant protein production systems in E. coli and baculovirus/insect cells. Recombinant E protein expressed in E. coli was formed within inclusion bodies. The expression level of this baculovirus/insect cell culture system in a 2L bioreactor was around 4.5 mg/L. Immunization of the full-length recombinant E protein expressed in baculovirus/insect cell system coupled with FCA/FIA gave a neutralization titer of PRNT50 = 80. After further challenges, the survival rate of the immunized mice reached 80-100%, suggesting the recombinant E proteins expressed in baculovirus/insect cells can induce an effective protective immune response. These results can provide important information for further development of JEV recombinant protein vaccines.

Key Word：Recombinant Protein、JEV、E.coli、Insect Cell