

Solubility, Immunogenicity and Physical Properties Of the Nucleocapsid Protein of Nipah Virus Produced in Escherichia Coli.

Abstract

The nucleocapsid (N) protein of Nipah virus (Niv) can be produced in three Escherichia coli strains (TOP10, BL (DEB) and S G935) under the control of trc promoter. However, most of the product existed in the form of insoluble inclusion bodies. There was no improvement in the solubility of the products when this protein was placed under the control of T7 promoter. However, the solubility of the N protein was significantly improved by lowering the growth temperature of E. coli BL21 (DE3) cell culture. Solubility analysis of N- and C-terminally deleted mutants revealed that the full-length N protein has the highest solubility. The soluble N protein could be purified efficiently by sucrose gradient centrifugation and nickel affinity chromatography. Electron microscopic analysis of the purified product revealed that the N protein assembled into herring bone-like particles of different lengths. The C-terminal end of the N Protein contains the major antigenic region when probed with antisera from humans and pigs infected naturally.