

## Characterisation of genotype VII Newcastle disease virus (NDV) isolated from NDV vaccinated chickens, and the efficacy of LaSota and recombinant genotype VII vaccines against challenge with velogenic NDV

### ABSTRACT

A Newcastle disease virus (NDV) isolate designated IBS002 was isolated from a commercial broiler farm in Malaysia. The virus was characterised as a virulent strain based on the multiple basic amino acid motif of the fusion (F) cleavage site 112RRRKGF117 and length of the C-terminus extension of the hemagglutinin-neuraminidase (HN) gene. Furthermore, IBS002 was classified as a velogenic NDV with mean death time (MDT) of 51.2 h and intracerebral pathogenicity index (ICPI) of 1.76. A genetic distance analysis based on the full-length F and HN genes showed that both velogenic viruses used in this study, genotype VII NDV isolate IBS002 and genotype VIII NDV isolate AF2240-I, had high genetic variations with genotype II LaSota vaccine. In this study, the protection efficacy of the recombinant genotype VII NDV inactivated vaccine was also evaluated when added to an existing commercial vaccination program against challenge with velogenic NDV IBS002 and NDV AF2240-I in commercial broilers. The results indicated that both LaSota and recombinant genotype VII vaccines offered full protection against challenge with AF2240-I. However, the LaSota vaccine only conferred partial protection against IBS002. In addition, significantly reduced viral shedding was observed in the recombinant genotype VII-vaccinated chickens compared to LaSota-vaccinated chickens.

**Keyword:** Genotype VII Newcastle disease virus; Recombinant genotype VII Newcastle disease virus vaccine; Vaccine efficacy; Viral shedding