

## **Hexon and fiber gene changes in an attenuated fowl adenovirus isolate from Malaysia in embryonated chicken eggs and its infectivity in chickens**

### **ABSTRACT**

Fowl adenovirus (FAdV) is distributed worldwide and causes economic losses in the poultry industry. The objectives of this study were to determine the hexon and fiber gene changes in an attenuated FAdV isolate from Malaysia in specific pathogen-free chicken embryonated eggs (SPF CEE) and its infectivity in commercial broiler chickens. SPF CEE were inoculated with 0.1 mL FAdV inoculum via the chorioallantoic membrane (CAM) for 20 consecutive passages. The isolate at passage 20 (E20), with a virus titer of  $108.7\text{TCID}_{50}/\text{mL}$  ( $\text{TCID}_{50}$ , 50% tissue culture infective dose), was inoculated (0.5 mL) into one-day-old commercial broiler chicks either via oral or intraperitoneal routes. The study demonstrated that 100% embryonic mortality was recorded from E2 to E20 with a delayed pattern at E17 onwards. The lesions were confined to the liver and CAM. Substitutions of amino acids in the L1 loop of hexon at positions 49 and 66, and in the knob of fiber at positions 318 and 322 were recorded in the E20 isolate. The isolate belongs to serotype 8b and is non-pathogenic to broiler chickens, but it is able to induce a FAdV antibody titer. It appears that molecular changes in the L1 loop of hexon and the knob of fiber are markers for FAdV infectivity.

**Keyword:** Amino acids; Chickens; Chorioallantoic membrane; Fowl adenovirus A; Specific pathogen-free organisms