First report of a novel duck astrovirus causing gout disease in ducklings

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April 16, 2024

Abstract

Four divergent groups of duck astroviruses (DAstVs) have been identified that infect domestic ducks. In March 2021, a fatal disease characterized by visceral urate deposition broke out in 5-day-old Beijing ducks on a commercial farm in Guangdong province, China. The pathogen was confirmed to be a duck astrovirus. The complete genome sequence of this DAstV was obtained by virome sequencing and amplification. Phylogenetic analyses and pairwise comparisons demonstrated that this DAstV represented a novel group of avastrovirus. Thus, we designated this duck astrovirus as DAstV-5 JM strain. DAstV-5 JM shared genome sequence identities of 15–45% with other avastroviruses. Amino acid identities with proteins from other avastroviruses did not exceed 59% for ORF1a, 79% for ORF1b, and 60% for ORF2. The capsid region of JM shared genetic distances of 0.596 to 0.695 with the three official avastrovirus species. In summary, we determined that the DAstV-5 JM strain, causing gout in ducklings, is a novel species of avastrovirus.

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