Adenoviruses (AdVs) are a family of viruses that infect a wide range of birds and mammals, including humans. Some fowl adenoviruses (FAdVs) are known to cause various diseases in birds, while others can often be found in healthy birds free from signs of disease. Inclusion Body Hepatitis (IBH) is a common disease of young meat-type chick-ens worldwide which is associated with FAdV infection. During outbreaks of IBH, between 2 and 10% of infected birds die suddenly, depending on how virulent (harmful) the particular strain of virus is and the general health of the chickens prior to infection. Although original virus multiplication takes place in the respiratory and digestive tracts, the virus typically spreads to all organs of the body. Studying virus genetics can help scientists to explain how different viruses are related, and also how a certain virus can cause disease. In genome sequencing, scientists piece together the structure and organization of all the genes in the FAdV-8 genome. The FAdV-8 genome showed similarities to the genomes of several adenoviruses, but was more closely related to FAdV-9 than FAdV-1. Although chickens infected with FAdV-8 had high viral numbers in several organs and had developed antibodies against the virus, they presented no clinical signs of disease. This strain is a non-disease causing virus, therefore it could be considered as a potential vaccine virus.
What did the researchers find?
The FAdV-8 genome was longer than that of FAdV-1, shorter than that of FAdV-9, and contained 46 likely protein-coding regions. Although the FAdV8 genome showed similarities to both FAdV-1 and FAdV-9, genome similarities were greater with FAdV-9, which also possesses a single fiber gene. Clinical signs of IBH were not seen in infected chickens, even though viral DNA was detected in 95% of tissue samples. Birds injected in the muscle had higher viral numbers and higher levels of anti-FAdV-8 antibodies than those infected by oral routes. Regardless of infection route, the cecal tonsil was the organ with the highest virus numbers, followed by the liver. Shedding of the virus through feces was recorded up to 28 days post infection.

Keywords:
Virus, adenovirus, fowl, poultry, birds, chickens, genetic sequencing, genome, infection

How can you use this research?
Poultry producers can use this research to better understand the risks and consequences of fowl adenovirus type-8 infections in poultry.
Virologists can use this research to understand how different adenoviruses are related to each other.
Veterinary pathologists can use this research to understand how adenoviruses can cause disease in birds.

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