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Evaluation of the efficacy and oviduct lesion of novel recombinant live attenuated avian infectious bronchitis virus

Jun-Young Kim[1], Kyu-jik Kim[1], Dam-hee Park[1], Ha-Na Youn[2], Hyo-Sun Ju[2], Jung-Hoon Kwon[1], Jin-Yong Noh[1], Je-Hyeon Jeong[1], Sol Jeong[1], Yu-jin Kim[1], Jun-Beom Kim[1], Ji-Ho Lee[1], Sun-hak Lee[1], Sang-Won Lee[1], Joong-Bok Lee[1], Seung-Yong Park[1], In-Soo Choi[1] and **Chang-Seon Song[1]**
[1]Konkuk University, South Korea
[2]KCAV Co. Ltd., South Korea

Infectious bronchitis virus (IBV) causes an acute and highly contagious viral disease of chickens that is characterized by respiratory signs, nephritis, and reduced egg reproduction. Early infection of chickens leads to permanent damage of the reproductive system, so infected layers do not lay normally at sexual maturity. Recent study shows some infected layers have been found to have ovary cyst which inhibits normal hierarchal ovarian follicle formation. We have previously demonstrated IBV strain K40/09 isolated from a broiler farm in Korea as a novel vaccine candidate. This variant strain belonged to the Korean new cluster 1, which originated from natural recombination between KM91 and QX-IBV and showed a high level of cross-protective efficacy in a previous study. In this study, we evaluated the safety of chicken reproductive organs after heat-adapted attenuated IBV K40/09 CE90 strain vaccination. One-day old SPF chicks were vaccinated by spray administration. We observed clinical sign and cystic oviduct lesion also evaluated by necropsy after 14-week monitoring period post vaccination. As a result, IBV K40/09 CE90 strain vaccination group showed no clinical sign and mortality, and cystic-aplastic oviduct lesion was less than 4.08% in accord with safety requirements of European Pharmacopoeia. The efficacy of IBV K40/09 CE90 also tested. The result revealed that K40/09 CE90 provided protection against virulent K40/09 parental strain and elicited the production of high titers of neutralizing antibody. We conclude that the K40/09 CE90 showed immunogenicity, protective efficacy and safety of reproductive organs required for a live attenuated vaccine. These results indicate that the K40/09 vaccine could be helpful for controlling IBV infection in Korea and have potential to become a novel vaccine candidate not only for broilers, but also for layers and breeders.

Biography

Jun Young Kim is Doctor of Veterinary Medicine and studying Master's degree at Konkuk University, Seoul, South Korea. His primary research interest is evaluating the pathogenicity, transmissibility and evolution of poultry pathogens such as avian infectious bronchitis virus making live attenuated vaccines for these pathogens. Additionally, he wants to study about variable ways to eradicate or alleviate avian infectious diseases. His final goal as a Poultry Veterinarian is to take care of Asian poultry farms.

okddr11@naver.com

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