

## **Preventive Effect of AHCC for Avian Influenza Virus**

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Bird influenza is an infection caused by avian influenza viruses. In particular, influenza A (H5N1) virus is highly contagious among birds and can be lethal to them. H5N1 virus does not usually infect people, but WHO has so far reported over 200 cases of infection and over 100 deaths. Although there has been no report that the virus causes human-to-human transmission, it is possible that mutation of the virus leads to the next human influenza pandemic. AHCC is a functional food derived from a Basidiomycete mushroom. It was demonstrated that AHCC enhances immunity through modulating various cytokine productions, resulting in anticancer effect, improvement of chemotherapy-induced side effects and infection prophylaxis.

In this study, we investigated to assess the preventive effect of AHCC for a H5N1 subtype of avian influenza virus. This study was conducted in collaboration with the College of Veterinary Medicine, South China Agricultural University. In the first experiment, Balb/c mice (female, 6-8 weeks old) were intranasally infected with 100 LD50 of H5N1 virus after 500mg/kg of AHCC was orally administered into the mice for 7 consecutive days. Survival and life extension rates were evaluated for 14 days following the infection. The second experiment was carried out to estimate a combination effect of AHCC and a vaccine against H5 subtype of avian influenza virus. Balb/c mice intraperitoneally received a single injection of the vaccine, and 100mg/kg of AHCC for 7 days. After the treatments, H5N1 virus was inoculated in the same way of the first experiment, and serum level of antibody and survival rate were measured.

AHCC alone treatment slightly improved the mortality caused by H5N1 virus, compared between control (100%) and AHCC (70%) groups. There was furthermore no death in combination group although all mice of control group were dead. Thus, it was suggested that AHCC itself inconsiderably shows preventive effect for bird flu, and the combination with vaccine might completely protect us from human influenza pandemic.