

Adjuvant-free Avian influenza vaccines in the works at Korea

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Professor Inhwan Hwang and Ph.D. candidate Shi-Jian Song of the Department of Life Science at the Pohang University of Science and Technology (POSTECH) – in joint research with Professor Chang Seon Song of Konkuk University, Professor Woe-Yeon Kim of Gyeongsang National University, and Eun-Ju Sohn of Bioapp, Inc. – have developed a multivalent vaccine against a variety of avian influenza viruses that does not require any adjuvant. This research was recently published in *Journal of Integrative Plant Biology*.

The avian influenza, an acute viral infectious disease that occurs in poultry such as chickens, ducks, and migratory birds, has been reported to be transmittable to humans.

Once it is transmitted, it spreads rapidly. Disposing infected livestock is not only costly, but also a cause of serious environmental pollution. This is why vaccines against infectious diseases are imperative. To this, a research team in Korea has recently developed a plant-based, adjuvant-free, recombinant protein vaccine that exhibits a strong immune response.

The research team at South Korea focused on developing multivalent vaccines against various avian influenzas based on green vaccine technology.

The researchers fabricated a protein trimer (tHA) using plant cells, just like making immune-stimulating drugs from antigenic spikes (haemagglutinin, HA) attached to the influenza virus. By coating this plant-produced tHA on the surface of the inactivated lactococcus without separation or purification, the researchers succeeded in producing bacteria-like particles (BLPs) that carry antigens.

“Utilizing the green vaccine technology, we have developed a recombinant protein-based vaccine that is safe from exposure to the virus and more,” explained Professor Inhwan Hwang of POSTECH who led the research. “Various strains appear at the same time for influenzas, and this multivalent vaccine can combat such strains.”