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Inventors

Roy Curtiss III

Director of the Center of Infectious Diseases and Vaccinology, Biodesign Institute, Arizona State University

Wei Kong

Research Assistant Professor, Biodesign Institute, Arizona State University

Intellectual Property Status:

Patent Pending

Contact

Jack Geltosky, PhD

Senior Vice President

Business Development, Life Sciences

Arizona Technology Enterprises, LLC (AzTE)

P: 480.884.1989

F: 480.884.1984 JGELTOSKY@AZTE.COM

HEALTHSCIENCES@AZTE.COM

Salmonella Anti-Influenza DNA and Antigen Delivery Vaccine

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Invention Description

DNA immunization strategies offer the promise of controlling avian coccidiosis in the poultry industry. DNA vaccination, however, typically requires delivery of large quantities of DNA by injection or particle gun. This mandates the handling of individual birds for each vaccination and makes the use of DNA vaccines prohibitively expensive for control of coccidiosis in poultry.

Investigators at the Biodesign Institute of Arizona State University have developed a vaccine delivery system that employs genetically engineered Salmonella strains. These strains exhibit efficient colonization of lymphoid tissues and have a self-destructing phenotype for efficient release of plasmid DNA or protective antigens.

This new technology allows for an easier delivery of plasmid DNA vaccines encoding antigens to be expressed by the immunized host for protection against a broad range of viral and parasitic infections. This method of immunization is most important for pathogens such as viruses and parasites, where synthesis of the protective antigen in the immunized eukaryotic host is necessary to achieve the correct post-translational modifications, such as glycosylation, and the subsequent induction of protective immunity.

Potential Applications

- This novel vaccine strategy can be instrumental in preventing economically relevant diseases of parasitic or viral origin in poultry and many other animal species, including humans.
- Another important application of this technology is in the field of vaccine development against avian or human influenza virus.

Benefits and Advantages

- Improved more efficient vaccine technology
- Easier to deliver and administer
- Handles a wide range of viral and parasite infections