Jose A Cano-Buendia et al., Madridge J Cancer Stud Res. 2019
http://dx.doi.org/10.18689/2640-5180.a4.009

madridge CONFERENCES

5th International Conference on
Oncology & Virology

July 25-26, 2019 Rome, Italy

Evaluation of Alpha Avian Interferon as a Genetic Adjuvant in Infectious Bronchitis Virus Vaccine

Jose A Cano-Buendia[1]*, Ana Paula da Silva[3], Eduardo Guzman-Olea[2] and **Rodrigo A. Gallardo[3]**
[1]Department of Microbiology and Immunology, National Autonomous University of Mexico, Mexico
[2]Consejo Nacional de Ciencia y Tecnologia CONACyT – UAEH, Mexico
[3]Poultry Medicine Program, School of Veterinary Medicine, University of California, USA

Viral diseases are a constant threat to the poultry industry. The use of vaccines are one option to control/eradicate them. Different novel elements have been developed to improve the potency of vaccines. Chicken alpha interferon (CHIFN-α) is naturally produced by the immune system and has antiviral activity. It inhibits viral replication and protects uninfected cells. Thus, CHIFN-α could be a good candidate to improve the avian immune response against any viral disease. The use of genetic adjuvants will allow for a fast, low cost, and stable adjuvant production. In the present study, we evaluate the use of CHIFN-α as a genetic adjuvant in a nanoparticle format. The CHIFN-α sequence was codon optimized and cloned into an expression vector under the CMV promoter. DNA-chitosan nanoparticles were formed and combined with a commercial live vaccine against avian infectious bronchitis virus (IBV). SPF chickens were vaccinated and groups were immunized via the oculo-nasal route at 1 and 14 days of age and challenged 7 days after the last immunization with the M41 strain. Specific IgG and IgA antibody titers against IBV were measured by ELISA. Respiratory signs, viral load, tracheal histomorphometry, cilia score and quantification of CHIFN-α, IL-6, IL-10 and IL-1B were analyzed. These results will help evaluate the use of CHIFN-α as a genetic adjuvant in commercial chicken vaccines against IBV.

Biography:

Dr. Jose A. Cano is an assistant professor working at UNAM, where he also previously received his DVM and PhD degree. He completed a postdoctoral position at the Biodesign Institute at Arizona State University (Dr. Stephen Johnston's lab). He has held research positions in the pharmaceutical industry where he developed therapeutic monoclonal antibodies. He is currently a visiting Professor at UC Davis and is a member of the ASV. Currently, his research focuses on the generation of therapeutic biomolecules like avian and porcine interferons as well as the identification of epitope/mimotopes for the development of multiplex diagnosis methods.