Field Clinical Study

Field efficacy in broiler chickens in Latin America of vHVT-013, a Marek’s HVT vector vaccine expressing VP2 on Infectious Bursal Disease virus


1 Merial Select, Airport Parkway 30503 Gainesville United States
2 Nutriservi, C.A., Maracay Venezuela
3 Universidad Nacional Mayor de San Marcos Lima Peru
4 Invetsa, San Agustin, 485 Surquillo Peru
5 Merial Saude Animal, Av. Carlos Grimaldi, 1701 13091-000 Campinas SP Brasil
6 Merial SAS, 29 avenue Tony Garnier 69348 Lyon cedex 07 France

Abstract

Introduction

Infectious Bursal Disease (IBD) and Marek’s disease (MD) are the main viral diseases that affect the chicken immune system. Gumboro virus, or Infectious Bursal Disease virus (IBDV), is a double-stranded RNA Birnavirus that destroys immature B-lymphocytes in the bursa of Fabricius. Very virulent strains of IBDV (vvIBDV) can induce severe immunosuppression and up to 50% mortality. Since the mid-1980’s, vvIBDV has spread in an explosive manner to nearly all continents. It is necessary to establish protection as early as possible for commercial chickens, which are usually infected early in life. Current vaccines that are used in field conditions are not entirely efficacious against different virus strains present on the field where the IBD virus can mutate rapidly and cannot overcome easily maternally derived antibodies.

The vaccine for Marek’s disease, caused gallid herpesvirus 2 (GaHV-2), was introduced in 1970. vHVT-013 used to formulate a live frozen vaccine against IBDV and Marek’s Disease, uses a classical Marek’s vaccine vectorized turkey Herpesvirus (HVT) expressing the protective antigen (VP2) of IBDV. VHVT-013 based frozen vaccine has been approved in the EU, USA and Latin American countries, based on experimental safety and efficacy data, for use on one-day old chicks and in ovo.
The field efficacy of vHVT-013 vaccine has been studied for the first time with trials in Latin America in broiler chicken flocks where classical, vvIBD and variant strains have been reported.

**Material and methods**

Field trials were performed between September, 2006, and February, 2007: one trial in a vvIBDV high prevalence zone in Venezuela with 275,000 chickens; three trials in Peru with 25,000; 130,000; and 165,000 birds, respectively; and one trial in Brazil. A challenge study was carried out in Peru. It involved 900 birds from commercial flocks, and compared vHVT-013 vaccine with other commercial vaccines against Gumboro and Marek’s diseases: broilers were challenged with the classical Gumboro strain F52/70 at 32 and 25 days post-vaccination, respectively.

One day-old chicks from different age flocks and incubators were vaccinated *in ovo* and *via* subcutaneous route with vHVT-013 vaccine. Other current vaccines were administered during the trials. Serology evaluations (ELISA test) were done at 3 days, PCR IBD Real Time tests and histopathological examination of bursa of Fabricius, spleen, liver and proventriculus at 14, 21, 25, and 28-30 days of age. The morphometric index (bursa/spleen), mortality, average body weight, feed conversion ratio, and cost of medication were determined. For the challenge trial, clinical symptoms (depression, diarrhoea and respiratory signs) were recorded.

**Results/Discussion**

The field studies confirmed the efficacy of vHVT-013 against classical, very virulent and variant IBDV strains, and Marek’s field strains compatible with HVT strain. A serological response and active immunity were induced against Gumboro and Marek’s viruses. There was no interference with maternal antibodies. Overall, vaccinated chickens had a higher mean weight, lower feed conversion ratio, and lower mortality than controls. The grade of post-vaccination bursal lesions was low, indicating that vHVT-013 vaccine is safer than conventional vaccines. The challenge study demonstrated better protection from clinical infection in broilers with vHVT-013 compared with the other vaccines. Overall, the use of vHVT-013 led to increased productivity and economic benefits.
Article

Cross protection among *Salmonella* serovars of groups B, C and D: interest of vaccine program combining live and killed vaccines

Le-Gros François-Xavier¹, Giacomini Cesarino², Nieddu Daniela²

¹ Merial SAS, Lyon Gerland Laboratory 254 rue Marcel Mérieux 69007 Lyon France  
² Merial Italia Spa, ss 234 per Cremona km 28.2 27013 Chignolo Po Italy

How to use the data?

These data generated by R&D Lyon, fully published in French language in 7èmes Journées de la Recherche Avicole, Tours, France, March 28-29th, 2007 proceedings and presented as an abstract in English at the 15th World Veterinary Poultry Congress in Beijing, China, September 12th-15th, 2007 can be used for Gallimune® Se+St product presentation. They show protection obtained after the use of a *Salmonella* Enteritidis (SE; group D) and Typhimurium (ST; group B) bivalent oily killed vaccine associated with priming using a live-deleted SE vaccine or used alone against various independent virulent challenges with *Salmonella* Heidelberg (Group B), *S. Hadar* (group C2), *S. Infantis* and *S. Virchow* (Group C1). Protection was demonstrated by serological activity and challenges using re-excretion in target organs.

References for use are:
