# NOBILIS® RISMAVAC

## SUPERIOR VERY VIRULENT MAREK'S DISEASE COVERAGE

Marek's disease (MD) is described as an acute lymphoproliferative disease of chickens, resulting in T-cell lymphomas in visceral organs, peripheral nerves and skin. The causative agent was identified in 1968 and named Marek's disease virus (MDV). MDV was first classified as a Gammaherpesvirus but then later re-classified as an Alphaherpesvirus based on its genomic structure.

**MDV has three serotypes:**

**Serotype 1** includes all the oncogenic strains and their derivatives. This serotype causes an acute lymphoproliferative disease in chickens, resulting in T-cell lymphomas that metastasize to visceral organs and peripheral nerves. Within serotype 1 viruses, there are several pathotypes: mild (m), virulent (v), very virulent (vv) and very virulent plus (vv+) based on their pathogenesis in protection tests. Both **Serotype 2** (isolated from chickens) and **Serotype 3** (isolated from turkeys) include non-oncogenic viruses.

Vaccines have long been used in the control of Marek's disease in chickens. The first vaccine used, HPRS-16/att, was derived by attenuation of a virulent strain and was introduced in 1969. This vaccine was quickly replaced by a turkey herpesvirus (HVT), an antigenically related virus belonging to serotype 3, which had better replication in chickens. In 1983 the increased virulence of field isolates in vaccinated chickens led to the use of bivalent vaccines consisting of HVT virus along with serotype 2 strains like SB-1 or 301B/1.

The evolution of the field viruses towards greater virulence was thought to be as a direct result of the use of vaccines to control the disease. The NOBILIS® RISMAVAC strain CVI-988/Rispens was originally isolated in 1972 in the Netherlands and was shown to be a mildly virulent serotype 1 virus. This virus was further attenuated by cell culture passage to generate a vaccine able to confer protection superior to that of bivalent vaccines against highly virulent MDV strains.

**!** CVI-988/Rispens virus is used worldwide for controlling MD caused by very virulent plus (vv+) strains and no better vaccines are currently available.

Recently, Witter and Kreager compared 10 strains of vaccine viruses and none showed a better protection against the disease than the CVI-988/Rispens virus. The conclusion followed that conventional vaccine development may have approached a biological threshold of vaccine efficacy.

Recombinant DNA technology has aided in the development of novel vaccines. Fowlpox vector vaccines designed to express several MDV envelope glycoproteins proved efficacious in protecting MD in chickens under laboratory conditions.

**!** However, these vaccines are not commercially used because they do not confer superior protection when compared to CVI-988/Rispens virus vaccination. Moreover, the presence of maternally derived antibodies to fowlpox, will greatly suppress the vaccine efficacy of fowlpox-vectored vaccines.

A full length MDV BAC (vv+ MDV 584A strain) derived DNA vaccine formulation has shown to confer some degree of protection but as of now they do not have superior efficacy compared to commercially available vaccines. The latest research has now shown that the gene *Meq* is consistently expressed in all MDV tumor and latent cells and is only present in serotype 1 strains but not in non-oncogenic serotypes 2 and 3 of MDV. There is new evidence that this virus would be a good candidate for a vaccine providing protection to chickens following a challenge with the vv+ 648A strain.

The above extract was based on a paper by Lucy F. Lee, K.S. Kreager, J. Arango, A. Paraguassu, B. Beckman, Huanmin Zhang, Aly Fadly, B. Lupiani and S.M. Reddy entitled **Comparative evaluation of vaccine efficacy of recombinant Marek's disease virus vaccine lacking *Meq* oncogene in commercial chickens.**

### NOBILIS® RISMAVAC

A low-passage, frozen live, cell-associated Marek's disease vaccine for use in 18-day chicken embryos or day-of-age chickens. Its rapid early replication provides optimum protection against early, very virulent Marek's disease challenge. It is approved for day-of-age or in-ovo injection.

### NOBILIS® RISMAVAC contains:

Original European CVI-988 Rispens strain of Marek's Disease virus.

**Product Features:**

- Lowest passage Rispens strain vaccine for maximum efficacy against virulent MD challenge strains.
- Very rapid virus replication to induce early protection.
- No interference in chicks with maternal antibody against HVT, SB1 or Rispens Marek's viruses.
- May be used as a monovalent vaccine even in birds with maternal antibody.
- Will not increase susceptibility to clinical lymphoid leukosis in commercial layers.


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