MAKING LT PROTECTION SAFER AND EASIER

1 vaccine up to 3 immunities
FACTS OF INFECTIOUS LARYNGOTRACHEITIS (LT) IN CHICKENS

- It’s a highly infectious disease of worldwide distribution.
- It induces significant economic losses due to high morbidity and variable mortality, drop in egg production, weight loss and susceptibility to other respiratory infections.
- The disease is caused by a Herpes viral infection characterized by latency, persistency and reversion to virulence.
- The viral infection induces chronic carrier for life, allowing the transmission to other birds and environmental contamination.

THE DIAGNOSIS CAN BE DONE BY

- Clinical signs (Figure 1)
- Post-mortem lesions: they may vary from mild to severe (Figure 2)
- Histopathology: observations of typical giant cells and intranuclear inclusion bodies in the tracheal epithelium in the early stage of infection
- Virus isolation
- Molecular biology methods to detect viral DNA such as PCR
- Serology
- Other diagnostic methods such as immunohistochemistry and immunofluorescence

CURRENT LIVE LT (CEO: CHICKEN EMBRYO ORIGIN OR TCO: TISSUE CULTURE ORIGIN) VACCINES SITUATION

These vaccines are able to provide protection but conversely, they have many side effects (Bagust 1986 and 1999, Graham 2000):

- Latent and persistent LT virus infection = chronic carrier state in vaccinated birds
- Reversion to virulence
- Transmission to other birds
- Shed into the environment
- Induce vaccine reactions that affect growth performance

There is a need for a new protective and safe LT vaccine without the limitations of the conventional live vaccines. It is the reason why Ceva, a leader in poultry vaccines, has developed a new approach to LT vaccination with a vectored vaccine: Vectormune® FP-LT.

VECTORMUNE® FP-LT AND VECTORMUNE® FP-LT + AE.

Vectormune® FP-LT is a genetically engineered live fowl pox virus vaccine carrying 2 immunorelevant genes from LT virus (Figure 3).

VECTORMUNE® FP-LT is a genetically engineered live fowl pox virus vaccine carrying 2 immunorelevant genes from LT virus resulting in a live fowl pox virus vectored LT contained in Vectormune® FP-LT vaccine.

This vaccine is combining the safety of a fowl pox vaccine with the protection induced by specific proteins from LT field virus. Vectormune® FP-LT is able to induce a high level of protection against both ILT and fowl pox viruses.

THE VACCINE IS AVAILABLE IN 2 COMBINATIONS:

- Vectormune® FP-LT for fowl pox and LT protection
- Vectormune® FP-LT + AE for fowl pox, LT and AE

THE AVIAN ENCEPHALOMYELITIS (AE) VIRUS, CALNEK STRAIN HAS BEEN ADDED TO THE VACCINE IN ORDER TO GET PROTECTION FOR FOWL POX, LT AND AE.
VECTORMUNE® FP-LT VACCINE STRAIN DOES NOT SPREAD FROM VACCINATED TO NON-VACCINATED BIRDS

Vaccination of 8 week old SPF chickens with Vectormune® FP-LT or with the Fowl Pox parent vaccine strain by wing web method was performed. Susceptible contact birds were placed in each isolator 24 h post vaccination. A group of SPF birds were not vaccinated and used as control group. A challenge was done with a fowl pox virus 3 weeks post-vaccination. Chickens were observed daily for 10 days post challenge.

The susceptible chickens, in contact with the Vectormune® FP-LT and Parent FP vaccinated chickens, were not protected against FP challenge. Vectormune® FP-LT vaccine strain does not spread from vaccinated birds to non-vaccinated birds.

PROTECTION WITH VECTORMUNE® FP-LT & VECTORMUNE® FP-LT + AE

COMPARISON OF VECTORMUNE® FP-LT + AE WITH LIVE LT CEO AND TCO VACCINES

A total of four groups of SPF chickens 8 weeks old were vaccinated as follows:
Group 1: Vectormune® FP-LT + AE by wing web - Group 2: Live LT CEO vaccine by eye drop
Group 3: Live LT TCO vaccine by eye drop - Group 4: Negative controls

The chickens were challenged at 3 weeks post-vaccination with an LT virulent reference strain from the USDA, challenge via infraorbital sinus route. The birds were observed daily for clinical signs of LT during 10 days after challenge.

All three vaccines were efficacious. Vectormune® FP-LT vaccinated chickens were as protected as the chickens vaccinated with the live LTV CEO or TCO vaccines.

DURATION OF LT IMMUNITY

8 weeks old SPF birds were vaccinated via wing web with Vectormune® FP-LT + AE. A non-vaccinated group of birds remained as control group. A total 40 vaccinated chickens per age group were challenged at 20, 24 and 32 weeks, with LTV USDA challenge strain via infraorbital sinus route. The non-vaccinated group composed of 15 birds were challenged at the same ages.

The Vectormune® FP-LT + AE challenged birds were protected after LT virus challenge at 20, 24 and 32 weeks of age compared to non vaccinated and challenged control birds.
### Fowl Pox Protection

8 weeks old SPF birds were vaccinated via wing web with Vectormune® FP-LT + AE. A non-vaccinated group of birds remained as control group.

A total 30 birds vaccinated chickens per age group were challenged at 20, 24 and 32 weeks, with FP USDA challenge strain via wing web route. The non-vaccinated group composed of 10 birds were challenged at the same ages.

### Avian Encephalomyelitis Protection

A total of 31 SPF birds of 8 weeks of age were vaccinated with Vectormune® FP-LT + AE via wing web route. A total of 10 SPF birds remained as control group.

The birds were challenged 3 weeks post-vaccination with an USDA AE challenge virus strain intracerebrally.

The birds were daily monitored for AE signs during 5 weeks post-challenge.

**Vectormune® FP-LT + AE challenged birds were protected after fowl pox virus challenge at 20, 24 and 32 weeks of age compared to non-vaccinated and challenged control birds.**

**AVIAN ENCEPHALOMYELITIS PROTECTION**

A total of 31 SPF birds of 8 weeks of age were vaccinated with Vectormune® FP-LT + AE via wing web route. A total of 10 SPF birds remained as control group.

The birds were challenged 3 weeks post-vaccination with an USDA AE challenge virus strain intracerebrally.

The birds were daily monitored for AE signs during 5 weeks post-challenge.

**Vectormune® FP-LT + AE challenged birds were protected after AE virulent challenge at 11 weeks of age.**

### Monitoring Vaccine “Take”

Vectormune® FP-LT does not spread from vaccinated to non-vaccinated chickens. The vaccine should be carefully applied to each bird in order to reach complete flock protection. The vaccine should be applied to the wing web with the double pronged applicator delivered with the blue diluent and the vaccine.

Application should be done to the bottom part of the wing in order to avoid the risk of losing vaccine in the feathers present on the upper part of the wing.

You can also use a wing web syringe. You should insure that the syringe is delivering the right dosage of vaccine: 0.01 ml per bird. Pay particular attention to ensure needles are projected from the syringe only after the syringe body is touching the birds skin. Otherwise there is a risk that the projected needles will deliver a portion of the vaccine in the feathers of the birds. Take care to maintain the syringe in a vertical position (needles pointing down) to ensure the correct quantity of vaccine is delivered.

Monitoring of vaccine take should be done between 5 and 8 days post-vaccination at the wing web injection site by evaluation of skin swelling due to fowl pox replication.

Immunity to LTV in chickens is determined primarily by a cell-mediated response mechanism of the immune system (Fahey and York, 1990). Therefore, serological monitoring of vaccinated birds with an Elisa test is not recommended. Vectormune® FP-LT does not induce detectable LT serological response.

### References


Composition: Vectormune® FP-LT contains a live freeze dried fowl pox recombinant vaccine indicated for use in chickens. The fowl pox virus in Vectormune® FP-LT expresses key protective infectious laryngotracheitis virus antigens.

Indications: Vectormune® FP-LT is indicated as an aid in the prevention of fowl pox and infectious laryngotracheitis in chickens. Vaccinate chickens 1 week of age or older, but at least 4 weeks prior to the onset of production.

Administration: Reconstitute the vaccine with the sterile diluent delivered with the vaccine. Inject 0.01ml per bird by wing web.

Special precautions for use: Vaccinate healthy susceptible birds only. Vectormune® FP-LT must be the first fowl pox vaccine administered to the chickens. Prior infection of the chickens with field fowl pox virus will interfere with protection of the vaccine.

Withdrawal period: 21 days.

Storage: Keep it cool between + 2 to + 7 °C (34° to 45 °F).

Precautions:
NO VACCINATION WITH VECTORMUNE® FP-LT OR VECTORMUNE® FP-LT + AE DURING LAY.
WITHDRAWAL PERIOD: 21 DAYS

Features and benefits Vectormune® FP-LT

Labor saving administration
Vectormune® FP-LT and Vectormune® FP-LT + AE eliminate the need for eye drop administration of LT live vaccines, reducing labour cost associated with handling the birds.

Safety
Vectormune® FP-LT and Vectormune® FP-LT + AE do not induce any post-vaccinal reaction due to LTV live vaccination in vaccinated chickens. Vectormune® FP-LT vaccine does not spread from vaccinated birds to non-vaccinated birds.

Effective
Vectormune® FP-LT and Vectormune® FP-LT + AE induce strong immunity against ILT, fowl pox and encephalomyelitis in a single wing web application.