COLI-VAC™

IMMUNO COMPETENCE

Heptavalent inactivated vaccine to prevent systemic *E. Coli* infections in commercial poultry

INTRODUCTION

Avian colibacillosis is a systemic disease caused by avian pathogenic Escherichia coli (APEC), a harmful Gram negative bacteria triggering diverse local and systemic infections in poultry. The clinical findings associated to APEC infection in poultry include: perihepatitis, airsacculitis, pericarditis, egg peritonitis, salphingitis, coligranuloma, omphalitis, cellulitis, and osteomyelitis/ arthritis.[2]

Colibacillosis is one of the leading causes of morbidity in poultry production, causing irreparable losses associated to:[3,4,5]

- Decreased protein production (2% decline in live weight, 2.7% deterioration in feed conversion ratio).
- Decreased egg production (up to 20%).
- Decreased hatching rates.
- Increased condemnation of carcasses (up to 43%) at slaughter.

Multiple APEC serotypes have been associated with colibacillosis in poultry production; however, serotype O78 is considered the most relevant from the epidemiological perspective. APEC can lead to systemic infections either as a primary pathogen or as secondary infection to i) viral agents (e.g. Infectious Bronchitis, Newcastle Disease, Avian Influenza, Gumboro), ii) invasive bacteria such as Mycoplasma gallisepticum or iii) environmental stress conditioning bacterial entry through oral and respiratory routes (e.g. overcrowding, high level of dust and ammonia).[2]

A suitable vaccine against Colibacillosis should target multiple serotypes of *E. coli*.[1] Regardless of the APEC serotype, a robust vaccination program is required to build immunity not only against APEC itself but also against viral and bacterial pathogens acting as primary infection.[2]

COMPOSITION (before inactivation)

- Inactivated Escherichia coli O166, O126, O157-H7, O18, O78, O127, and hemolytic un-typed ≥ $3x10^{7.0}$ CFU/dose (from each strain).

TARGET SPECIES

Chickens.

INDICATIONS

For active immunization of commercial chickens to prevent air sac disease and septicaemia caused by avian colibacillosis.

VACCINATION PROGRAM

Birds can be vaccinated from 2 weeks of age onwards, as per advice from your poultry veterinarian. Breeders and layers shall be vaccinated twice with 6 weeks interval.

WITHDRAWAL

Zero days.

IMMUNITY:

- Onset of immunity: 4 weeks after primary vaccination.
- Duration of immunity: until 8 weeks after single dose.

DOSAGE

The vaccine dose is 0.5 mL per bird.

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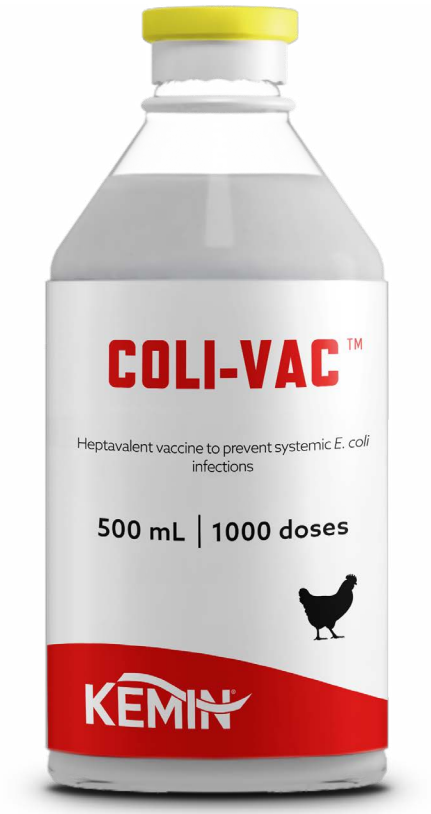

PRESENTATION

COLI-VAC™ is packed and presented in 500 mL (1000 doses) polyethylene terephthalate (PET) bottles.

ADMINISTRATION

Before use, the vaccine should be shaken well to ensure proper mixing. Sterile injection equipment should be used to avoid contamination. Do not use COLI-VAC™ if you notice critical irreversible separation of the emulsion.

- Subcutaneous injection: in the lower part of the neck. The needle should be inserted just under the skin in a direction away from the head and in a straight line with the neck.

STORAGE PRECAUTIONS

- Store and transport refrigerated (+2 °C to +8 °C).
- Do not freeze.
- Store in a dry place protected from direct light.
- Do not use this product after the expiry date.
- Shelf life after first opening the bottle: 3 hours.

References

1. *Ebrahimi-Nik et al 2018. Bacterial ghost of avian pathogenic E. coli (APEC) serotype O78:K80 as a homologous vaccine against avian colibacillosis. PLoS ONE 13(3): e0194888. https://doi.org/10.1371/journal.pone.0194888*
2. *Kathayat et al, 2021. Avian Pathogenic Escherichia coli (APEC): An Overview of Virulence and Pathogenesis Factors, Zoonotic Potential, and Control Strategies. Pathogens. 2021 Apr 12;10(4):467. doi: 10.3390/pathogens10040467.*
3. *Dho-Moulin & Morris Fairbrother, 1999. Avian pathogenic Escherichia coli (APEC). Veterinary Research, 1999, 30 (2-3), pp.299-316. HAL Id: hal-00902571.*
4. *Guabiraba & Schouler 2015. Avian colibacillosis: still many black holes. FEMS Microbiology Letters, 362, 2015, fnv118. doi: 10.1093/femsle/fnv118.*
5. *Mellata 2013. Human and avian extraintestinal pathogenic Escherichia coli: infections, zoonotic risks, and antibiotic resistance trends. Foodborne Pathog Dis. 2013 Nov;10(11):916-32. doi: 10.1089/fpd.2013.1533.*

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