

# Clostridium Perfringens Type C-Escherichia Coli Bacterin-Toxoid



## LitterGuard® LT-C

**PRODUCT DESCRIPTION:** LitterGuard LT-C is for vaccination of healthy pregnant sows and gilts for passive transfer of protective maternal antibodies to their pigs as an aid in preventing neonatal diarrhea caused by beta toxin produced by *Clostridium perfringens* type C and enterotoxigenic strains of *Escherichia coli* producing heat-labile toxin or having the K99, K88, 987P, or F41 adherence factors. The bacterin-toxoid is prepared from chemically inactivated strains of *E. coli* and *Cl. perfringens* type C beta toxoid. A sterile adjuvant is used to enhance the immune response.

**DISEASE DESCRIPTION:** Enterotoxigenic strains of *E. coli* are among the most important etiologic agents of porcine neonatal diarrhea. Studies have shown that enterotoxigenic *E. coli* isolated from diarrheic pigs have 2 characteristics in common: (1) they have pili, surface antigenic structures which attach the bacteria to cells of the intestinal epithelium; and (2) they express enterotoxins, causing the intestinal cells to secrete body fluids and electrolytes into the gut lumen. The results are diarrhea, dehydration, and in severe cases, death. The 4 major pili types associated with neonatal enteric colibacillosis in swine are K99, K88, 987P,<sup>1</sup> and F41.<sup>2</sup>

*Cl. perfringens* type C produces a highly fatal enteritis, usually in pigs less than 1 week old. It is characterized clinically by dehydration, weakness, and diarrhea, which is hemorrhagic in peracute and acute cases. Although morbidity rates vary greatly between herds and even between litters in the same herd, mortality is consistently high in pigs clinically affected. Death may be caused by one or more of the consequences of enterotoxemia. In some cases secondary bacteremia occurs, usually involving *E. coli* or other *Cl. perfringens* types.<sup>3</sup>

**SAFETY AND EFFICACY:** No adverse reactions to LitterGuard LT-C were reported in experimental tests, or in clinical trials conducted by independent veterinarians. Efficacy of LitterGuard LT-C was demonstrated in challenge-of-immunity tests involving pregnant sows and gilts and their litters. Newborn pigs from vaccinated dams experienced significantly lower incidence and severity of neonatal diarrhea than newborn pigs from nonvaccinated dams. No immunologic interference was demonstrated among the various fractions of LitterGuard LT-C.

LitterGuard LT-C protects pigs by means of maternally derived antibodies present in colostrum and milk of vaccinated dams. Newborn pigs' adequate and timely consumption of the colostrum and milk is therefore essential for protection.

**DIRECTIONS:**

1. *General Directions:* Shake well. Aseptically administer 2 mL intramuscularly or subcutaneously.
2. *Primary Vaccination:* Healthy, pregnant swine should receive 2 doses administered 3 weeks apart during the last half of pregnancy. The second dose should be given at least 2 weeks before farrowing.
3. *Revaccination:* Pregnant swine should be revaccinated with a single dose at least 2 weeks before each subsequent farrowing.
4. Good animal husbandry and herd health management practices should be employed.

**PRECAUTIONS:**

1. Store at 2°–7°C. Prolonged exposure to higher temperatures may adversely affect potency. Do not freeze.
2. Use entire contents when first opened.
3. Sterilized syringes and needles should be used to administer this vaccine.
4. Do not vaccinate within 21 days before slaughter.
5. As with many vaccines, anaphylaxis may occur after use. Initial antidote of epinephrine is recommended and should be followed with appropriate supportive therapy.
6. This product has been shown to be efficacious in healthy animals. A protective immune response may not be elicited if animals are incubating an infectious disease, are malnourished or parasitized, are stressed due to shipment or environmental conditions, are otherwise immunocompromised, or the vaccine is not administered in accordance with label directions.

**REFERENCES:**

1. Moon HW, Isaacson RE, Pohlenz J: Mechanisms of association of enteropathogenic *Escherichia coli* with intestinal epithelium. *Am J Clin Nutr* 32:119–127, 1979.
2. Moon HW, Kohler EM, Schneider RA, *et al*: Prevalence of pilus antigens, enterotoxin types, and enteropathogenicity among K-88 negative enterotoxigenic *Escherichia coli* from neonatal pigs. *Infect Immun* 27: 222–230, 1980.
3. Bergland ME: Clostridial infections. In: Leman AD, Glock RD, Mengeling WL, *et al*, eds., *Diseases of Swine*, 5th ed., Ames: Iowa State University Press, 419, 1981.

Technical inquiries should be directed to Zoetis Inc.  
Veterinary Services, (888) 963-8471 (USA), (800) 461-0917 (Canada).

For veterinary use only

K88 component under Pfizer contract with Cetus Corporation.

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The Zoetis logo, featuring the word "zoetis" in a lowercase, bold, sans-serif font. The letter "z" is stylized with a horizontal line extending to the left.

Zoetis Inc.  
Kalamazoo, MI 49007, USA

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