

VANGUARD[®] cr Lyme



15 MONTH
Duration of Immunity¹



BROAD COVERAGE IS BETTER COVERAGE

VANGUARD[®] crLyme is the **first** and **only** canine Lyme disease vaccine that contains **two recombinant proteins**:

- An outer surface protein A (OspA)
- An OspC chimeric protein containing antigenic material from **seven common types** of OspC known to be expressed in cases of canine Lyme disease²

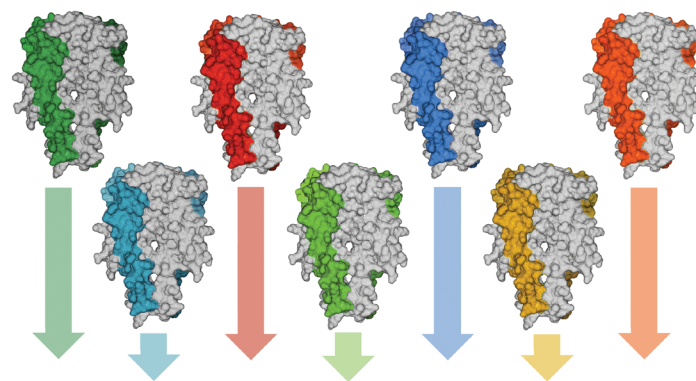
Its innovative formulation helps elicit a **targeted immune response** to *Borrelia burgdorferi* bacteria and allows for a **broad spectrum of coverage**.

Indication: For vaccination of healthy dogs 8 weeks of age or older as an aid in the prevention of clinical disease and subclinical arthritis associated with *Borrelia burgdorferi*.

Administration: 1 mL subcutaneously; dogs should be administered 2 doses, 3 weeks apart.

VANGUARD crLyme Chimeric Recombinant Technology

7 types of OspC proteins commonly seen in canine Lyme infections



OspC chimeric protein

OspA protein

WHY IT IS IMPORTANT TO CONSIDER OspC VARIABILITY IN LYME DISEASE PREVENTION

- Multiple types of OspC have been discovered in Lyme-infected dogs²
- Each *Borrelia burgdorferi* can only express one type of OspC.
- Ticks can be infected with multiple *B. burgdorferi* bacteria, and therefore multiple types of OspC can be expressed²
- Antibody response to OspC is type-specific.³

Until now...

It was not immunologically feasible to address OspC variability via vaccination. At most, previously available vaccines have only contained and protected against one type of OspC.

THE PREVALENCE OF LYME DISEASE IS INCREASING

- The Centers for Disease Control and Prevention noted a 28% increase in the U.S. human incidence rate between 2005 and 2013.⁴
- The Companion Animal Parasite Council noted over 265,000 positive canine cases in 2016.⁵
- One in 16 dogs in the United States test positive for Lyme disease.⁵

EFFICACY DEMONSTRATED IN A 15-MONTH DURATION OF IMMUNITY STUDY^{1,6}

- Helped prevent transmission of *B. burgdorferi* from infected ticks to vaccinated dogs.
- A significant reduction of ($p < 0.0001$) of *B. burgdorferi* infection was observed in vaccinated dogs when compared to placebo control.
- Helped prevent Lyme disease-associated joint swelling and skin inflammation.

DEMONSTRATED SAFETY⁷

In a field safety study, the most common non-serious adverse events were injection site edema, injection site pain and lethargy.

Visit **VANGUARDcrLyme.com** for more information about this innovative vaccine.

¹ Data on file, Study Report No. B864R-US-12-037, Zoetis Inc.

² Rhodes DV, Earnhart CG, Mather TN, Meeus PF, Marconi RT. Identification of *Borrelia burgdorferi* ospC genotypes in canine tissue following tick infestation: implications for Lyme disease vaccine and diagnostic assay design. *Vet J*. 2013;198(2):412-418. doi:10.1016/j.tvjl.2013.07.019.

³ Kenedy MR, Lenhart TR, Akins DR. The role of *Borrelia burgdorferi* outer surface proteins. *FEMS Immunol Med Microbiol*. 2012;66(1):1-19. doi:10.1111/j.1574-695X.2012.00980.x.

⁴ Lyme disease incidence rates by state, 2005-2014. Centers for Disease Control and Prevention National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) Division of Vector-Borne Diseases (DVBD). <http://www.cdc.gov/lyme/stats/chartstables/incidencebystate.html>. Accessed June 29, 2016.

⁵ Parasite prevalence maps. Companion Animal Parasite Council. <https://www.capcvet.org/maps/#2017/all/lyme-disease/dog/united-states>. Accessed July 28, 2017.

⁶ Data on file, Study Report No. B865R-US-12-018, Zoetis Inc.

⁷ Data on file, Study Report No. B961R-US-12-009, Zoetis Inc.

