ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Borrelia Vmp-like sequence expressed (VlsE) C6 peptide

□ **Cat.** # VLSE65-UL	Borrelia Vmp-like sequence expressed (VlsE) C6 peptide (>90%) for ELISA	**SIZE**:100 ug
□ **Cat.** # VLSE65-BTN	Borrelia Vmp-like sequence expressed (VlsE) C6 peptide-Biotin (>90%) for ELISA	**SIZE**:100 ug

Lyme disease was first identified in 1975 in Old Lyme, Connecticut, USA. Lyme disease or **Lyme borreliosis** is an infectious disease caused by bacteria of the **Borrelia** type, identified in 1981 by Willy Burgdorfer. The most common sign of infection is an expanding area of redness, known as erythema migrans, that begins at the site of a tick bite about a week after it has occurred. If untreated, symptoms may include loss of the ability to move one or both sides of the face, joint pains, severe headaches with neck stiffness, or heart palpitations, among others. Lyme disease is transmitted to humans by the bite of infected **ticks of the Ixodes genus** (hard-bodied ticks, Ixodes scapularis in USA; Ixodes ricinus in Europe).



B. burgdorferi is a highly specialized, motile, two-membrane, flat-waved spirochete, ranging from about 9 to 32 micrometers in length. The outer membrane of B. burgdorferi is composed of various unique **outer surface proteins (Osp**) that have been characterized (OspA through OspF). The Osp proteins are lipoproteins anchored by N-terminally attached fatty acid molecules to the membrane. Osp proteins are presumed to play a role in virulence, transmission, or survival in the tick. **OspA** (257, aa, ~31-kda) and **OspB** (~34-kda) are the major outer membrane proteins of B. burgdorferi and show a high degree of sequence similarity. **OspC** is a strong antigen and stimulates an immune response in the host. ospC proteins (~207-aa), among different strains of Borrelia, is highly variable (60-80%). When the tick feeds, the Borrelia downregulates OspA and upregulates OspC. After the bacteria migrate from the midgut to the salivary glands Successful infection of the mammalian host depends on bacterial expression of OspC.

Vmp-like sequence expressed (VlsE) outer surface lipoprotein of B. burgdorferi, a specific and highly immunogenic protein, that undergoes antigenic variation during infection. It consists of two invariable domains (**IR1-IR6**) located at the N- and C-termini of the protein, as well as six variable regions (**VR1–VR6**) within its central domain. VlsE elicits a strong antibody response that can be detected throughout the course of the disease (from early to late phase) and which persists for months to years. The major **immunodominant** epitope of VlsE has been found to be located within the **IR6 region is called C6 peptide**. IgG antibodies to C6-peptide have been shown to be detectable as early as 2 weeks post-infection, and antibodies wane over time after treatment. Likewise, cross-reactivity in individuals who have been vaccinated with the recombinant ospA Lyme disease vaccine Lymerix is not observed. Because of its simplicity and high degrees of sensitivity, specificity, and precision, this C6-peptide based antibody test will be helpful in alleviating some of the remaining problems with the serodiagnosis of Lyme disease.

Source of Antigen

Vmp-like sequence expressed (VlsE) C6 peptide is a synthetic peptide, no fusion tag in the protein. It is supplied in PBS, pH 7.4 in liquid or lyophilized in the same buffer (lot sp. concn is supplied on the vial). **Reconstitute** powder in PBS, pH 7.4 at 1 mg/ml**.** Store at -20oc or below in suitable aliquots.

Storage

Short-term: unopened, undiluted liquid vials **at -20°C** and powder at **4°C or -20°C**.

Long-term: at **–20°C** or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at **–20°C** or below.
Shipping: **4°C** for solutions and room temp for powder

Recommended Usage

Western Blotting load 50-200 ng/lane and detect with appropriate antibodies.

ELISA coat 50-100 ng of protein/well).

Specificity & Cross-reactivity

Vmp-like sequence expressed (VlsE) antigenic peptide is conserved in various Borrelia genotypes.

General References: Hapiro, ED (2014). The New England Journal of Medicine. 370 (18): 1724–31; Aucott JN (2015). Infectious Disease Clinics of North America. 29 (2): 309–23; Pritt, BS (2016). The Lancet. Infectious diseases. 16: 556–564.

**This product is for in vitro research use only.*

Related material available from ADI

Catalog#	Description
500-585-CMM	Dog Anti-Borrelia burgdorferi VlsE C-6 peptide IgM ELISA Kit (DIVA test), 96 tests, quantitative
BBA11-S	Sheep Anti-Borrelia burgdorferi (whole antigens) antiserum
BBA12-A	Rabbit Anti-Borrelia burgdorferi (whole antigens) IgG
BBA13-M	Mouse Monoclonal Anti-Borrelia burgdorferi sensu strict IgG, aff pure
BBA15-N-100	Borrelia burgdorferi extracts (B31/whole antigens) for ELISA
OSPA57-R-10	Recombinant (E. coli) Borrelia garinii OspA protein (OSP-A, 95%, His-tag) for ELISA
OSPC11-A	Rabbit Anti-Borrelia burgdorferi Osp-C protein (OspC) IgG, aff pure
OSPC12-C	Recombinant Borrelia burgdorferi Osp-C protein (OSP-C) control for Western blot
OSPC12-S	Rabbit Anti-Borrelia burgdorferi Osp-C protein (OspC) antiserum
OSPC65-R-10	Recombinant (E. coli) Borrelia burgdorferi OspC protein (Osp-C, 95%, His-tag) for ELISA
OSPC66-R-10	Recombinant (E. coli) Borrelia afzelli OspC protein (Osp-C, 95%, His-tag) for ELISA
OSPC67-R-10	Recombinant (E. coli) Borrelia garinii OspC protein (Osp-C, 95%, His-tag) for ELISA
OSPC71-A	Rabbit Anti-Borrelia OspC7 peptide IgG, aff pure
OSPC71-BTN-1	Borrelia Biotin-OspC7 peptide (C-terminal, 7-aa, >90%, Biotin at the NT) for ELISA
OSPC71-P-1	Borrelia OspC7 peptide (C-terminal, 7-aa, >90%) for ELISA
OSPC73-P-1	Borrelia OspC10 peptide (C-terminal, 10-aa, >90%) for ELISA
VLSE11-A	Rabbit Anti-Borrelia Vmp-like sequence expressed (VlsE) protein IgG, aff pure
VLSE61-A	Rabbit Anti-Borrelia Vmp-like sequence expressed (VlsE) C6 peptide IgG, aff pure
VLSE65-BTN	Borrelia Vmp-like sequence expressed (VlsE) C6 peptide-Biotin (>90%) for ELISA
VLSE65-UL	Borrelia Vmp-like sequence expressed (VlsE) C6 peptide (>90%) for ELISA
VLSE75-R-10	Recombinant (E. coli) Borrelia burgdorferi VlsE protein (95%, His-tag) for ELISA
VLSE76-R-10	Recombinant (E. coli) Borrelia afzelli VlsE protein (95%, His-tag) for ELISA

VLSE65-UL-Borrelia-C6-peptide 170330A

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