Recombinant Borrelia Miyamotoi GlpQ Protein, His-tagged

Cat. No. BOR-042 **Lot. No.** (See product label)

SPECIFICATION

Product Overview	This is a recombinant Borrelia miyamotoi GlpQ protein with C-terminal 10x His-tag was produced in E. coli.
Tag	His
Background	Relapsing Fever is an arthropod-borne infection caused by bacteria of the genus Borrelia, and sub-species Relapsing Fever. It can be divided into Louse-borne Relapsing Fever and Tick-borne Relapsing Fever. Borrelia miyamotoi is a tick-borne relapsing fever Borrelia group spirochete that is transmitted by the same hard-bodied (Ixodid) tick species that transmit the agents of Lyme disease. It was discovered in 1994 in Ixodes persulcatus ticks in Japan. B. miyamotoi species phylogenetically cluster with the relapsing fever group spirochetes, which usually are transmitted by soft-bodied (argasid) ticks or lice. B. miyamotoi infects at least six Ixodes tick species in North America and Eurasia that transmit Lyme disease group spirochetes and may use small rodents and birds as reservoirs. Human cases of B. miyamotoi infection were first reported in 2011 in Russia and subsequently in the United States, Europe and Japan (Krause et al., 2015). The most common clinical manifestations of B. miyamotoi infection are fever, fatigue, headache, chills, myalgia, arthralgia, and nausea. Symptoms of B. miyamotoi infection generally resolve within a week of the start of antibiotic therapy. As early as 1985, spirochetes that were likely B. miyamotoi were observed in ticks in the United States. However, they were mistakenly thought to be B. burgdorferi as a consequence of cross-reactive antibodies that were used in direct immunoassays. Additionally, antigenic cross-reactivities in immunoassays between Borrelia species in North America also complicated diagnosis of both Lyme

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	disease and relapsing fever (Magnarelli et al., 1987). In 1996, Schwan et al. reported the identification of an immunodominant enzyme in Borrelia hermsii called glycerophosphodiester phosphodiesterase (GlpQ, GDPD). Eight species of relapsing fever group spirochetes were found to contain a GlpQ ortholog and six Lyme disease Borrelia species did not (Schwan et al., 2003). Sera from Lyme disease patients should not cross-react in a GlpQ assay because Lyme disease Borrelia species (as well as Anaplasma, Babesia and Ehrlichia species) lack the gene for GlpQ (Schwan et al., 1996). Indeed, serum from humans infected with relapsing fever group spirochetes reacted positively by immunoblotting with Borrelia miyamotoi GlpQ protein, while serum from patients with Lyme disease did not (Schwan et al., 1996). As such, serologic testing is now used to help confirm B. miyamotoi diagnosis. An antibody response to Borrelia GlpQ antigen is a characteristic of relapsing fever that distinguishes it from the immune response to Lyme disease (Schwan et al., 1996). A two-tiered antibody assay based on recombinant B. miyamotoi GlpQ protein was developed that detects GlpQ-specific antibodies during the acute and convalescent stages of infection (Schwan et al., 1996). B. miyamotoi GlpQ protein is also no more than 50% identical to the GlpQ proteins of some other bacterial pathogens, such as Klebsiella pneumoniae and Salmonella enterica and so is not expected to cross-react with anti-GlpQ antibodies elicited by other disease agents (Bacon et al., 2004).
Purity	>90%
Formulation	300 mM NaCl, 50 mM Tris-HCl, pH 8.5.
Notes	This product is intended for research and manufacturing uses only. It is not a diagnostic device. The user assumes all responsibility for care, custody and control of the material, including its disposal, in accordance with all regulations.
Type	Recombinant

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ClassID 1	Infectious Disease

GENE INFORMATION

Synonyms	Borrelia Miyamotoi GlpQ

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