

Datasheet for 200-401-C17**p39 Antibody****Overview**

Description:	Anti-p39 (RABBIT) Antibody - 200-401-C17
Item No.:	200-401-C17
Size:	100 µg
Applications:	ELISA, WB
Reactivity:	Borrelia afzelii, Borrelia burgdorferi
Host Species:	Rabbit

Product Details**Background:**

The p39 protein, or Basic membrane protein A, is one of the immunogenic cell membrane components of *Borrelia burgdorferi*, the spirochete carried by Ixodes ticks. The spirochete migrates from the tick midgut during feeding to its salivary glands and are thus transmitted to the mammal host. This transition may be facilitated by changes in expression of some *B. burgdorferi* genes. It is believed that expression of the various proteins associated with the spirochete may be regulated by the changes in tick life cycle, changes in conditions during tick feeding (such as temperature, pH, and nutrients) and/or in coordination with the course of infection of the mammal host. BmpA is expressed during the invasion of the spirochete and in the evolution of the arthritis of Lyme disease in mammals. It belongs to the BMP lipoprotein family. The major products of the *B. burgdorferi* basic membrane protein (bmp) A/B operon that are induced in murine and human joints possess inflammatory properties. Non-lipidated and lipidated versions of BmpA have been shown to induce the pro-inflammatory cytokine TNF- α and IL-1 β in human synovial cells. The induction of cytokine responses in synovial cells via activation of the NF-kappaB and p38 MAP kinase pathways could potentially contribute to the genesis of Lyme arthritis. The BmpA outer-surface protein is an important antigen for serodiagnosis of human infection. *B. burgdorferi* adheres to host extracellular matrix components, including laminin, but may not bind mammalian type I or type IV collagens or fibronectin.

Synonyms:	rabbit anti-p39 Antibody, Basic membrane protein A, Borrelia burgdorferi bmpA, immunodominant antigen P39, membrane lipoprotein BmpA
Host Species:	Rabbit
Clonality:	Polyclonal
Format:	IgG

Target Details

Gene Name:	bmpA, BB_0383
Reactivity:	Borrelia afzelii, Borrelia burgdorferi
Immunogen Type:	Recombinant Protein
Immunogen:	MBP-fusion protein corresponding to Borrelia burgdorferi p39 protein.
Purity/Specificity:	This product was Protein-A purified and cross-adsorbed against MBP from monospecific antiserum by chromatography. This antibody is specific for Borrelia burgdorferi p39 protein. A BLAST analysis was used to suggest cross-reactivity with p39 from B. burgdorferi and B. afzelii sources based on 100% homology with the immunizing sequence. Partial reactivity is expected against B. garinii sources based on 88-95% homology and to B.spielmanii A14S based on 86-96% homology. Cross-reactivity with p39 from other sources has not been determined.
Relevant Links:	• UniProtKB - Q45010 • NCBI - WP_002656850.1 • GenelD - 1195220

Application Details

Tested Applications:	ELISA, WB
Application Note:	This protein-A purified antibody has been tested for use in ELISA and Western blotting. Specific conditions for reactivity should be optimized by the user. Expect a band approximately 35.4 kDa in size corresponding to Borrelia burgdorferi p39 protein by Western blotting in the appropriate cell lysate or extract.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
ELISA:	>1:5,000
WB:	1:1,000

Formulation

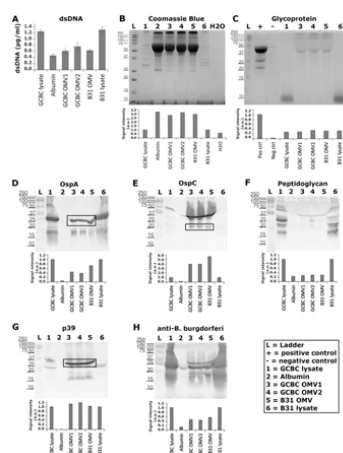
Physical State:	Lyophilized
Concentration:	1.0 mg/mL by UV absorbance at 280 nm
Buffer:	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Preservative:	0.01% (w/v) Sodium Azide

Stabilizer:	None
Reconstitution Volume:	100 μ L
Reconstitution Buffer:	Restore with deionized water (or equivalent)

Shipping & Handling

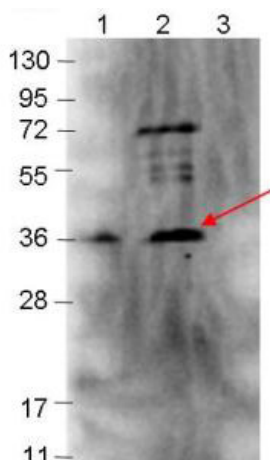
Shipping Condition:	Ambient
Storage Condition:	Store vial at 4° C prior to restoration. For extended storage aliquot contents and freeze at -20° C or below. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.
Expiration:	Expiration date is one (1) year from date of receipt.

Images



Western Blot

B. burgdorferi outer membrane vesicles contained several antigenic markers. (A) BbOMVs contained double stranded DNA, which was measured using a Qubit 2.0 fluorometer with a broad-range stain. Standard deviations from triplicate experiments. (B) Proteins were resolved with SDS-PAGE and stained with Coomassie Blue, while a Pierce Glycoprotein staining kit (Thermo scientific) was used for visualizing glycoproteins (C). Western blot analysis demonstrated known borrelial antigens OspA (D), OspC (E), peptidoglycan (F), and p39 (G). Anti-*B. burgdorferi* whole cell antibody was examined as a control (H). For the protein analysis, H₂O was used as a negative control, and albumin (lane 2) as a positive control, for the staining. The negative (–, soybean trypsin inhibitor) and positive (+, horseradish peroxidase) controls provided by the glycoprotein staining kit were employed in the analysis. In the Western blots, albumin was utilized as a negative control for the immunolabel. *B. burgdorferi* strains GCBC (lane 1) and B31 (lane 6) bacterial cell lysates were used as positive controls for the labels in each experiment. Lanes 3 and 4 demonstrate BbOMVs purified from GCBC culture, while lane 5 has B31 purified BbOMVs. In order to obtain the full range of signals, the intensity values were analyzed from each lane in the Coomassie Blue and glycoprotein gels, as well as in the peptidoglycan and anti-*B. burgdorferi* labeled blots. Whereas the signals from specific bands representing each expected protein (black box) in OspA, OspC, and p39 blots were examined. Values were normalized to the positive controls: borrelial cell lysates in Coomassie Blue stained gel and western blots, and the kit provided positive control (horseradish peroxidase) in the glycoprotein gel. GCBC BbOMVs and albumin were normalized to GCBC lysates, and the B31 BbOMVs to the B31 lysate. Representative images from three separate experiments. Fig 3. PMID: 35208666



Western Blot

Western blot showing detection of 0.1 µg of recombinant p39 protein. Lane 1: Molecular weight markers. Lane 2: MBP-p39 fusion protein (expected MW: 77.8 kDa). Lane 3: MBP alone. Protein was run on a 4-20% gel, then transferred to 0.45 µm nitrocellulose. After blocking with 1% BSA-TTBS (p/n MB-013, diluted to 1X) overnight at 4°C, primary antibody was used at 1:1000 at room temperature for 30 min. HRP-conjugated Goat-Anti-Rabbit (p/n 611-103-122) secondary antibody was used at 1:40,000 in MB-070 blocking buffer and imaged on the VersaDoc™ MP 4000 imaging system (Bio-Rad).

References

- Karvonen, K et al. *Borrelia burgdorferi* Outer Membrane Vesicles Contain Antigenic Proteins, but Do Not Induce Cell Death in Human Cells. *Microorganisms* (2022)

Disclaimer

This product is for research use only and is not intended for therapeutic or diagnostic applications. Please contact a technical service representative for more information. All products of animal origin manufactured by Rockland Immunochemicals are derived from starting materials of North American origin. Collection was performed in United States Department of Agriculture (USDA) inspected facilities and all materials have been inspected and certified to be free of disease and suitable for exportation. All properties listed are typical characteristics and are not specifications. All suggestions and data are offered in good faith but without guarantee as conditions and methods of use of our products are beyond our control. All claims must be made within 30 days following the date of delivery. The prospective user must determine the suitability of our materials before adopting them on a commercial scale. Suggested uses of our products are not recommendations to use our products in violation of any patent or as a license under any patent of Rockland Immunochemicals, Inc. If you require a commercial license to use this material and do not have one, then return this material, unopened to: Rockland Inc., P.O. BOX 5199, Limerick, Pennsylvania, USA.