

Datasheet for 200-401-C11**OspC Antibody****Overview**

Description:	Anti-OspC (RABBIT) Antibody - 200-401-C11
Item No.:	200-401-C11
Size:	100 µg
Applications:	ELISA, WB, IF
Reactivity:	Borrelia burgdorferi
Host Species:	Rabbit

Product Details

Background:	Outer Surface Protein C, or OspC, is a 20.7 kDa immunogenic protein on the outer surface of the spirochete <i>Borrelia burgdorferi</i> . Its function is not known, but it is located with lipid-anchoring sites on the outer cell membrane.
Synonyms:	rabbit anti-OspC Antibody, <i>Borrelia burgdorferi</i> OspC, PC, Outer Surface Protein C, BB_B19
Host Species:	Rabbit
Clonality:	Polyclonal
Format:	IgG

Target Details

Gene Name:	ospC
Reactivity:	<i>Borrelia burgdorferi</i>
Immunogen Type:	Recombinant Protein
Immunogen:	MBP-fusion protein corresponding to <i>Borrelia burgdorferi</i> OspC protein.
Purity/Specificity:	This product was Protein-A purified and cross-adsorbed against MBP from monospecific antiserum by chromatography. This antibody is specific for <i>Borrelia burgdorferi</i> OspC protein. A BLAST analysis was used to suggest cross-reactivity with p39 from <i>B. burgdorferi</i> , <i>afzelii</i> , and <i>valaisiana</i> sources based on 100% homology with the immunizing sequence. Partial reactivity is expected against <i>B. japonica</i> and <i>americana</i> sources based on 94% homology. Cross-reactivity with OspC from other sources has not been determined.

Relevant Links:	• UniProtKB - Q07337 • NCBI - WP_010890595.1 • GeneID - 1194415
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Application Details

Tested Applications:	ELISA, WB
Suggested Applications:	IF (Based on references)
Application Note:	This protein-A purified antibody has been tested for use in Western blotting and in ELISA. Specific conditions for reactivity should be optimized by the user. Expect a band approximately 20.7 kDa in size corresponding to Borrelia burgdorferi OspC 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.
WB:	1:1,000

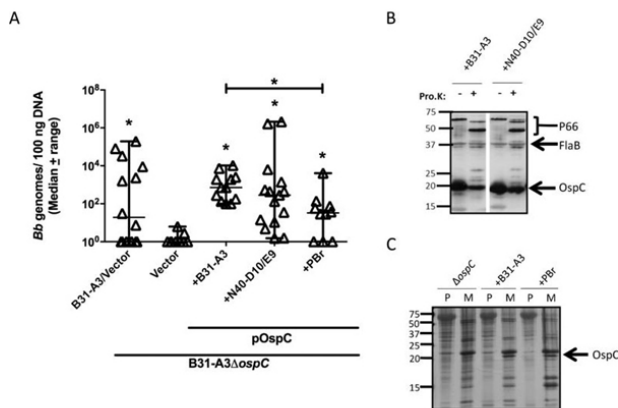
Formulation

Physical State:	Lyophilized
Concentration:	1.22 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 µL
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

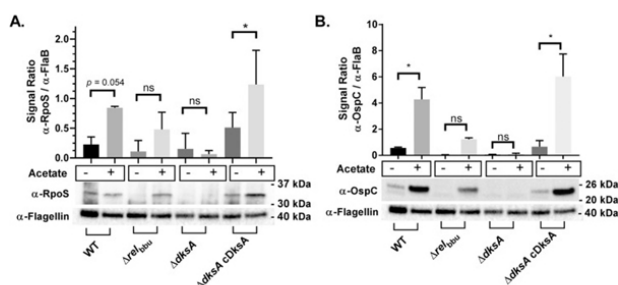


Western Blot

(A) C3H/HeN mice were retro-orbitally inoculated with infectious *B. burgdorferi* strain B31-A3 (B31-A3/Vector) (n=15), B31-A3ΔospC+vector (Vector)(n=9), or B31-A3ΔospC constitutively expressing ospC alleles from *B. burgdorferi* strain B31-A3 (+B31-A3)(n=12), N40 clone D10/E9 (+N40-D10/E9)(n=15), or *B. garinii* strain PBr (+PBr) (n=10). Production of OspC from B31-A3 and N40 restored bloodstream survival to similar levels at 1 hr. post inoculation, while OspC from *B. garinii* strain PBr restored bloodstream survival to a reduced level. Statistical significance determined by Mann-Whitney unpaired t-test. *=Statistically significantly different than ospC mutant, p-value <0.05. #= Statistically significant difference between +B31-A3 and +PBr, p-value <0.05.

(B) Surface exposure of the exogenously expressed ospC alleles was confirmed by incubating *B. burgdorferi* expressing each allele, from the flaB promoter, with proteinase K (+) or buffer (-). Confirmation of bacterial cell integrity is shown by the presence of intact flagellin with and without proteinase K. Sensitivity of the membrane protein, P66, is seen in the presence of proteinase K. (C) Silver stain of membrane extracts from *B. burgdorferi* OspC derivatives separated by 15% SDS-PAGE. Arrow indicates OspC, (M) indicates membrane fraction, (P) indicates non-membrane fraction. Fig 2.

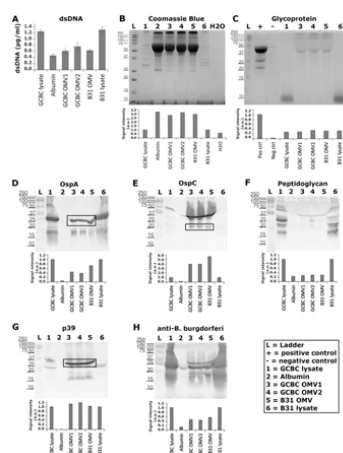
PMID: 28873507



Western Blot

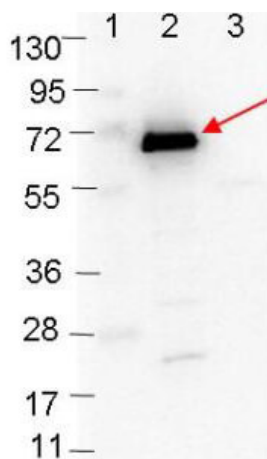
Whole cell lysates were collected from *B. burgdorferi* 297 strain cultured to 5×10^7 spirochetes/mL in either BSKII-pH 7.6 (acetate -) or BSKII-pH 6.7 with 20 mM acetate (acetate +). Expression of RpoS (A) and OspC (B) protein levels were determined by normalizing densitometry of chemiluminescence signals obtained from western blot to signals obtained from flagellin. Data are representative of 3 replicate experiments. Asterisk indicate adjusted p-values < 0.05 in a Sidak multiple comparisons test. Fig 4.

PMID: 33600418



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 OspC protein. Lane 1: Molecular weight markers. Lane 2: MBP-OspC fusion protein (arrow; expected MW: 63.1 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

- Pfeifle A et al. Novel recombinant vaccinia virus-vectored vaccine affords complete protection against homologous *Borrelia burgdorferi* infection in mice. *Emerg Microbes Infect.* (2024)
- Karvonen, K et al. *Borrelia burgdorferi* Outer Membrane Vesicles Contain Antigenic Proteins, but Do Not Induce Cell Death in Human Cells. *Microorganisms* (2022)
- Boyle WK et al. DksA-dependent regulation of RpoS contributes to *Borrelia burgdorferi* tick-borne transmission and mammalian infectivity. *PLoS Pathog.* (2021)
- Salverda, Merijn Louis Marten (Amsterdam, NL), Van Der, Ley Peter André (Utrecht, NL) Surface display of antigens on Gram-negative outer membrane vesicles. *patent:20200197308* (2020)
- Caine et al. *Borrelia burgdorferi* outer surface protein C (OspC) binds complement component C4b and confers bloodstream survival. *Cellular Microbiology* (2017)
- Caine et al. A short-term *Borrelia burgdorferi* infection model identifies tissue tropisms and bloodstream survival conferred by adhesion proteins. *Infection and Immunity* (2015)

Disclaimer

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