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Datasheet for 000-001-C30

Surface Lipoprotein p27 Control Protein

Overview

Description:	Surface Lipoprotein p27 Control Protein - 000-001-C30
Item No.:	000-001-C30
Size:	100 µg
Applications:	SDS-PAGE, WB, Biochemical Assay
Origin:	Borrelia burgdorferi
Expressed in:	E. coli

Product Details

Background:	Surface Lipoprotein p27 of Borrelia burgdorferi is a surface-exposed lipoprotein that has been shown (by Western blot and Northern blot) to be expressed in the European B. burgdorferi strain B29, but not in the American strain B31. Cell envelope proteins of bacterial pathogens play important roles in the host-parasite interactions that occur during infection, including cell adherence, cell invasion, and immune cell activation or evasion. p27 is a basic protein of 248 amino acids with a typical prokaryotic leader sequence of 17 amino acid residues at the N-terminus of the proposed translation product. The p27 gene is located on a linear plasmid of a size of approximately 55 kb. Borrelia spirochetes are unique among diderm bacteria in their abundance of surface-displayed lipoproteins, some of which play important roles in the pathogenesis of Lyme disease and relapsing fever. There is evidence that Borrelia lipoproteins are specifically targeted to the bacterial surface, but that they can be retained in the periplasm by sequence-specific signals. Lyme disease proteins are ideal for researchers interested in immunology, neurology, rheumatology, coinfections, autoimmune, and neurodegenerative diseases.
Synonyms:	BBA060 protein, Borrelia burgdorferi p27, Surface lipoprotein p27, control protein
Species of Origin:	Borrelia burgdorferi
Expressed in:	E. coli
Type:	Recombinant Protein

Target Details

Gene Name:	BB_A60

Purity/Specificity:	Surface Lipoprotein p27 is a fusion protein with an MBP tag and was expressed in E. coli. Analysis by SDS-PAGE resulted in a pattern consistent with purified Surface Lipoprotein p27 and was estimated to be greater than 90% pure.
Relevant Links:	• UniProtKB - O50951 • NCBI - WP_010890395.1 • GeneID - 1194336

Application Details

Tested Applications:	SDS-PAGE, WB
Suggested Applications:	Biochemical Assay (Based on references)
Application Note:	Surface Lipoprotein p27 is suitable as a control in immunological assays. Specific conditions for reactivity should be optimized by the end user. Expect a band at 73.3 kDa for p27-MBP, (30.9 kDa for p27 and 42.4 kDa for MBP) in size corresponding to Surface Lipoprotein p27 by Western blotting in the appropriate cell lysate or extract. Surface Lipoprotein p27 protein was tested in SDS-page and western blot.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
ELISA:	User Optimized
WB:	User Optimized

Formulation

Physical State:	Liquid (sterile filtered)
Concentration:	1.0 mg/mL by modified Lowry assay
Buffer:	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Preservative:	0.01% (w/v) Sodium Azide
Stabilizer:	None

Shipping & Handling

Shipping Condition:	Dry Ice
Storage Condition:	Store vial at -20 °C prior to opening. Aliquot contents and freeze at -20 °C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. Dilute only prior to immediate use.

Expiration: Expiration date is six (6) months from date of receipt.

Images

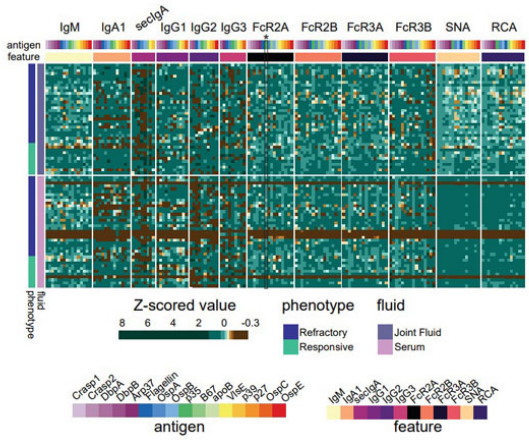


Figure
Systems serology profiling with Borrelia-specific antigens reveals patient heterogeneity. The heatmap shows the Z-scored measurements for 12 features, across 16 antigens for both refractory and responsive patients, visualized with joint fluid measurements in the upper half of the heatmap and serum measurements in the lower half of the heatmap. Only antigens detected above background for at least 30% of samples were included for each measurement. Statistical significance was assessed using the Mann-Whitney nonparametric test, with p values then corrected for multiple hypothesis testing via Benjamini-Hochburg, *p < 0.05, **p < 0.01, ***p < 0.001, else not significant. CRASP1 (p/n 000-001-C18), CRASP2 (p/n 000-001-C19), DbpA (p/n 000-001-B98), DbpB (p/n 000-001-C16), Arp37 (p/n 000-001-C09), flagellin (p/n 000-001-C14), OspA (p/n 000-001-C13), OspB (p/n 000-001-C15), OspC (p/n 000-001-C11), OspE (p/n 000-001-C10), p27 (p/n 000-001-C30), p35 (p/n 000-001-C12), p39 (p/n 000-001-C17), VlsE (p/n 000-001-C33). Fig 1. PMID: 38303696.

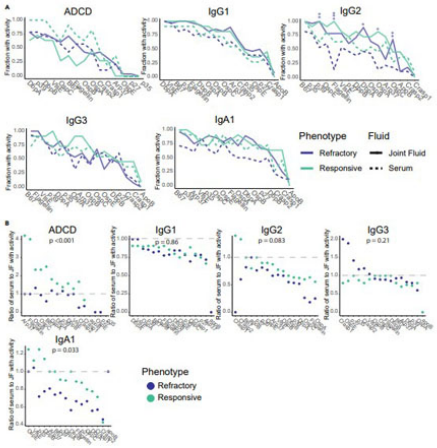
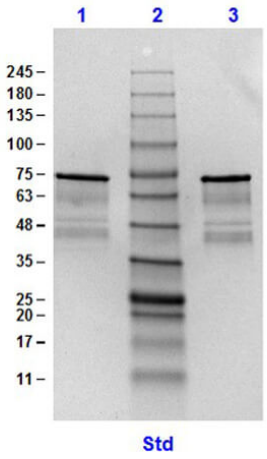
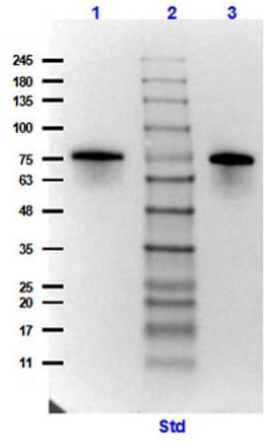


Figure
Antigen-specific IgG2, IgA1, and ADCD partitioning between compartments differs significantly across disease phenotypes. (A) Fraction of samples with non-zero measurements for ADCD, IgG1, IgG2, IgG3, and IgA1 for refractory (dark blue) and responsive (green) patients in the serum (dashed line) and joint fluid (solid line) for each antigen. Significant differences in distribution of non-zero measurements between fluids as assessed by a Fisher's exact test are denoted as *p < 0.05, **p < 0.01, ***p < 0.001 for refractory (dark blue) and responsive (green) samples after correction for multiple hypothesis testing via Benjamini-Hochburg. (B) Ratio of fraction of serum samples with non-zero measurements to fraction of joint fluid samples with non-zero measurements for ADCD, IgG1, IgG2, IgG3, and IgA1 for refractory (dark blue) and responsive (green) patients for each antigen. Significant differences in distributions of ratios between phenotypes are assessed by a Mann-Whitney nonparametric test, then corrected for multiple hypothesis testing via Benjamini-Hochburg. CRASP1, CRASP2, DbpA, DbpB, Arp37, flagellin, OspA, OspB, OspC, OspE, p27, p35, p39, VlsE: Rockland antigens. Fig 6. PMID: 38303696.



SDS-PAGE
SDS PAGE Results of Surface Lipoprotein p27 Control Protein. Lane 1: p27 Control Protein Reduced [1.0µg]. Lane 2: Opal Prestained Molecular Weight Marker (p/n MB-210-0500). Lane 3: p27 Control Protein Non-Reduced [1.0µg]. 4-20% Gel, Coomassie Stained.



Western Blot
Western Blot Results of Surface Lipoprotein p27 Control Protein. Lane 1: p27 Control Protein Reduced [0.1µg]. Lane 2: Opal Prestained Molecular Weight Marker (p/n MB-210-0500). Lane 3: p27 Control Protein Non-Reduced [0.1µg]. Primary Antibody: Rabbit Anti-p27 (p/n 200-401-C30) at 1µg/mL overnight at 2-8°C. Secondary Antibody: Goat Anti-Rabbit IgG HRP MX10 (p/n 611-103-122) at 1:70,000 for 30 min at RT. Block: BlockOut Buffer (p/n MB-073) for 30 mins at RT. Predicted MW: ~73.3kDa.

References

- Bowman KA. et al. Borrelia-specific antibody profiles and complement deposition in joint fluid distinguish antibiotic-refractory from -responsive Lyme arthritis. *iScience.* (2024)

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