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Datasheet for 000-001-C19

Crasp2 Control Protein

Overview

Description:	Crasp2 Control Protein - 000-001-C19
Item No.:	000-001-C19
Size:	100 µg
Applications:	SDS-PAGE, WB, Biochemical Assay
Origin:	Borrelia burgdorferi
Expressed in:	E. coli

Product Details

Background:	CRASP-2 (Complement Regulator-Acquiring Surface Protein 2) of Borrelia burgdorferi binds FHL-1 and factor H binding protein in a distinct way. It may be predominantly expressed by serum-resistant Borrelia strains. Borrelia burgdorferi sensu lato has the ability to evade immune systems to persist in a variety of vertebrate hosts. This activity is dependent on a number of factors. Some Borrelia species bind host-derived fluid-phase immune regulators FHL-1 and factor H to their surface via complement regulator-acquiring surface proteins (CRASPs). Factor H and FHL-1 serve as cofactors for factor I, a serine protease that cleaves complement component 3b (C3b) directly on the cell surface and thereby confers resistance of spirochetes to complement-mediated lysis. It is possible that because of discontinuous binding regions in the factor H/FHL-1, long distance interaction may be involved in binding of both immune regulators. Putative coiled-coil structural elements may be important in the interaction of B. burgdorferi CRASP-1 with factor H. Lyme disease proteins are ideal for researchers interested in immunology, neurology, rheumatology, coinfections, autoimmune, and neurodegenerative diseases.
Synonyms:	control protein, Borrelia burgdorferi CRASP-2, CRASP2
Species of Origin:	Borrelia burgdorferi
Expressed in:	E. coli
Type:	Recombinant Protein

Target Details

Gene Name:	cspZ, BB_H06

Purity/Specificity:	Crasp2 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 Crasp2 and was estimated to be greater than 90% pure.
Relevant Links:	• UniProtKB - O50665 • NCBI - WP_010890313.1 • GeneID - 1194149

Application Details

Tested Applications:	SDS-PAGE, WB
Suggested Applications:	Biochemical Assay (Based on references)
Application Note:	Crasp2 is suitable as a control in immunological assays. Specific conditions for reactivity should be optimized by the end user. Expect bands at 67.8 kDa for CRASP-2-MBP, (25.4 kDa for CRASP-2 and 42.4 kDa for MBP) and in size corresponding to Crasp2 by Western blotting in the appropriate cell lysate or extract. Complement Regulator-Acquiring Surface Protein 2 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:	1.0mg/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

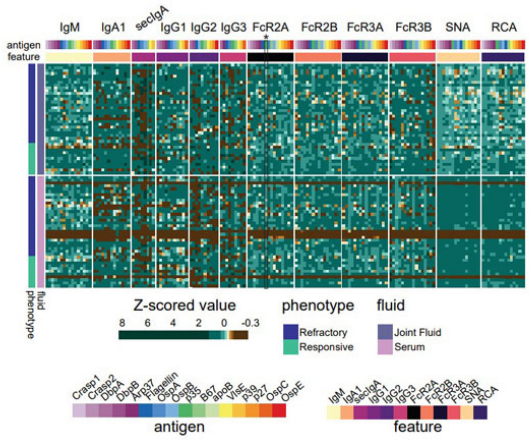
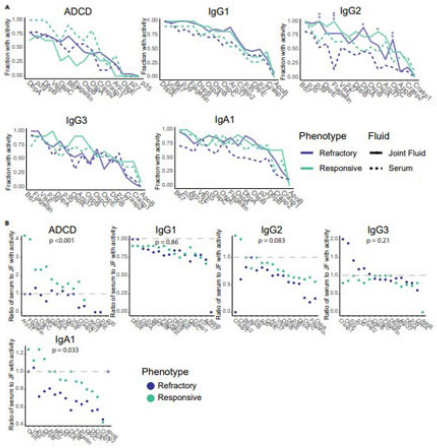
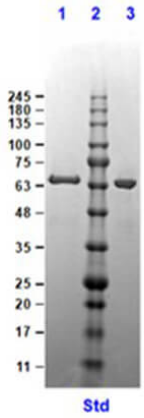


Figure
Systems serology profiling with Borrelia-specific antigens reveals patient heterogeneity. The heatmap shows the Z-scored measurements for 12 features, across 16 antigens for both refractory and responsive patients, visualized with joint fluid measurements in the upper half of the heatmap and serum 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.



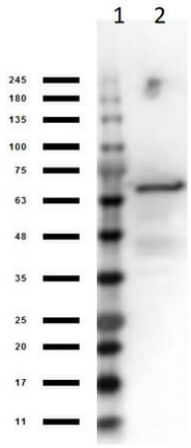
Figure

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 Crasp2 Control Protein. Lane 1: Crasp2 Control Protein Reduced [1.0µg]. Lane 2: Opal Prestained Molecular Weight Marker (p/n MB-210-0500). Lane 3: Crasp2 Control Protein Non-Reduced [1.0µg]. 4-20% Gel, Coomassie Stained.



Western Blot
Western Blot Results of Control Protein. Lane 1: Opal Prestained Molecular Weight Marker (p/n MB-210-0500). Lane 2: Crasp2 Control Protein Reduced [0.05µg]. Primary Antibody: Rabbit Anti-MBP at 1.0µg/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 mins at RT. Block: BlockOut Buffer (p/m MB-073) at RT for 30 mins. Predicted MW: ~67.8kDa. Exposure: 1 sec.

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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