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Datasheet for 000-001-C18

Crasp-1 Control Protein

Overview

Description:	Crasp-1 Control Protein - 000-001-C18
Item No.:	000-001-C18
Size:	100 µg
Applications:	SDS-PAGE, WB, Biochemical Assay
Origin:	Borrelia burgdorferi
Expressed in:	E. coli

Product Details

Background:	CRASP-1, or Complement Regulator-Acquiring Surface Protein 1, is a multifunctional protein of Lyme disease-causing B. burgdorferi that binds to several human extracellular matrix proteins and plasminogen, including factor H (resulting in inhibition of complement activation in mammals) and Human Bone Morphogenic Protein 2. These interactions may contribute to adhesion, bacterial colonization, and organ tropism and may allow dissemination of B. burgdorferi in the host. B. burgdorferi spirochetes express up to 5 complement regulator-acquiring surface proteins. Multiple copies of sequences analagous to CRASP-1 genes have been detected in Borrelia plasmids. Borrelia species contain a large number of plasmids, of linear and circular, some of which appear to repeat sequences or contain fragments of other genes. These regions may serve as potentially usable information for the survival of Borrelia in its multiple environments during its life cycle. In addition, the sequence for CRASP-1 contains a repeated sequence folded into a stable stem loop structure typical of RNA genes. Lyme disease proteins are ideal for researchers interested in immunology, neurology, rheumatology, coinfections, autoimmune, and neurodegenerative diseases.
Synonyms:	control protein, Complement regulator acquiring protein 1, Borrelia burgdorferi CRASP-1
Species of Origin:	Borrelia burgdorferi
Expressed in:	E. coli
Type:	Recombinant Protein

Target Details

Gene Name:	CRASP1

Purity/Specificity:	Crasp1 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 Crasp1 and was estimated to be greater than 90% pure.
Relevant Links:	• UniProtKB - Q66ZC1 • NCBI - WP_010890397.1 • GeneID - 1194383

Application Details

Tested Applications:	SDS-PAGE, WB
Suggested Applications:	Biochemical Assay (Based on references)
Application Note:	Crasp1 is suitable as a control in immunological assays. Specific conditions for reactivity should be optimized by the end user. Expect bands at 69.3 kDa for CRASP-1-MBP, (26.9 kDa for CRASP-1 and 42.4 kDa for MBP) in size corresponding to Crasp1 by Western blotting in the appropriate cell lysate or extract. Complement Regulator-Acquiring Surface Protein 1 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 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

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

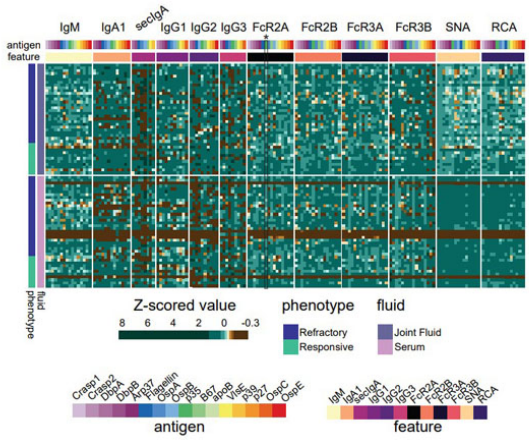


Figure
Systems serology profiling with Borrelia-specific antigens reveals patient heterogeneity. The heatmap shows the Z-scored measurements for 12 features, across 16 antigens for both refractory and responsive patients, visualized with joint fluid measurements in the upper half of the heatmap and serum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

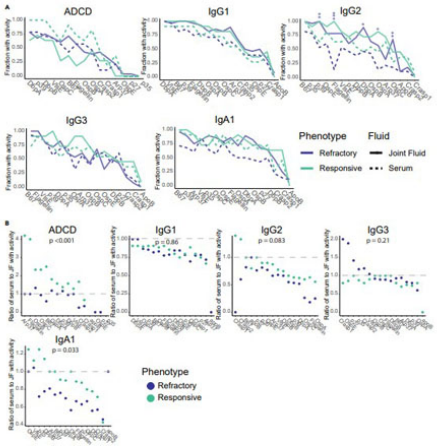
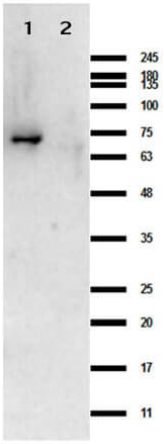


Figure
Antigen-specific IgG2, IgA1, and ADCD partitioning between compartments differs significantly across disease phenotypes. (A) Fraction of samples with non-zero measurements for ADCD, IgG1, IgG2, IgG3, and IgA1 for refractory (dark blue) and responsive (green) patients in the serum (dashed line) 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.



Western Blot
Western Blot results of Rabbit Anti-Crasp-1 Antibody. Lane 1: Crasp 1 protein (p/n 000-001-C18). Lane 2: MBP (p/n 000-001-385). Load: 0.05 µL. Primary Antibody: Rabbit Anti-Crasp-1 Antibody (p/n 200-401-C18) at 1.0mg/mL overnight at 4°C. Secondary Antibody: Goat anti-Rabbit (p/n 611-101-122) at 1:70,000 for 30 min at RT. Blocking: BlockOut Buffer (p/n MB-073) for 30min at RT. Expect: ~63.9kDa.

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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