Datasheet: 2222-8004

BATCH NUMBER 171641

Description:	MOUSE ANTI HUMAN C4d
Specificity:	C4d
Other names:	COMPLEMENT COMPONENT 4d
Format:	Purified
Product Type:	Monoclonal Antibody
Clone:	10-11
Isotype:	IgG1
Quantity:	0.1 mg

Product Details

Applications

This product has been reported to work in the following applications. This information is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information. For general protocol recommendations, please visit www.bio-rad-antibodies.com/protocols.

	Yes	No	Not Determined	Suggested Dilution
Immunohistology - Frozen	▪			1/100 - 1/750
Immunohistology - Paraffin (1)	▪			
ELISA	▪			1/5000 - 1/20000
Western Blotting	▪			
Immunofluorescence	▪			1/250 - 1/600

Where this product has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. Suggested working dilutions are given as a guide only. It is recommended that the user titrates the product for use in their own system using the appropriate negative/positive controls.

(1)**It has been reported that this antibody works very well on acetone-fixed, frozen renal biopsies. Strong staining is observed in the glomeruli and in some cases the peritubular capillaries.**

Clone 10-11 has given variable results on formalin-fixed, paraffin-embedded sections. It has been observed that pre-treatment with 88% formic acid for 20 minutes at room temperature is beneficial (6).

Target Species	Human
Species Cross	Does not react with:Mouse, Dog, Bovine, Cat, Rabbit, Rat, Guinea Pig, Sheep

Reactivity	
Product Form	Purified IgG - liquid
Preparation	Purified IgG prepared by Fast protein liquid chromatography (FPLC) from ascites
Buffer Solution	Borate buffered saline
Preservative Stabilisers	<0.1% Sodium Azide (NaN_3)
Approx. Protein Concentrations	IgG concentration 1.0 mg/ml
Immunogen	Native, from human plasma
External Database Links	**UniProt:** P0C0L4 Related reagents P0C0L5 Related reagents **Entrez Gene:** 720 C4A Related reagents 721 C4B Related reagents
Synonyms	CO4, CPAMD2, CPAMD3
RRID	AB_620117
Specificity	**Mouse anti Human C4d antibody, clone 10-11** recognizes the secreted protein complement component 4d (C4d). The presence of C4d in renal peritubular capillaries is a key indicator for acute antibody-mediated rejection [AMR] (Collins *et al.* 1999.). C4d was accepted in 2003 into the Banff classification for identification of acute AMR (Racusen *et al.* 2003). Mouse anti Human C4d antibody, clone 10-11 is specific for C4d, a marker that can be used in the detection of acute AMR for kidney, heart, pancreas and lung allografts. C4d is regarded as a key marker of antibody-mediated cell injury and humoral rejection (Sacks and Chowdhury 2002). Complement 1 complex cleaves complement 4 (C4) to form C4b and C4a. C4b levels are strictly regulated. Single site cleavage of the C4b's alpha chain by Factor I forms iC4b and blocks C3 convertase, inhibiting opsonization and activation of the classical pathway. This requires C4 binding protein or CR1 as a cofactor. iC4b is further degraded into C4d and C4c. C4b's short half life means that C4d is present in serum at high enough concentrations to make it a useful marker for classical complement activation (Collins *et al.* 1999). Mouse anti Human C4d antibody, clone 10-11 is used to detect the biomarker C4d which has been described as a "footprint" of antibody mediated tissue rejection (Sacks and

Chowdhury 2002). The internal thioester of C4b becomes exposed during cleavage to C4d and forms a covalent bond with the cell surface. The longer half-life of covalently bound C4d makes it a footprint of complement activation long after weakly bound antibodies have been cleared by the blood stream (Sacks and Chowdhury 2002).

C4 has also been linked to susceptibility to systemic lupus erythematosus (Yang *et al.* 2004) and rheumatoid arthritis (Makinde *et al.* 1989).

References

1. Collins, A.B. *et al.* (1999) Complement activation in acute humoral renal allograft rejection: diagnostic significance of C4d deposits in peritubular capillaries. J Am Soc Nephrol. 10 (10): 2208-14.
2. Mauiyyedi, S. *et al.* (2001) Chronic humoral rejection: identification of antibody-mediated chronic renal allograft rejection by C4d deposits in peritubular capillaries. J Am Soc Nephrol. 12 (3): 574-82.
3. Mauiyyedi, S. *et al.* (2002) Acute humoral rejection in kidney transplantation: II. Morphology, immunopathology, and pathologic classification. J Am Soc Nephrol. 13 (3): 779-87.
4. Knechtle, S.J. *et al.* (2003) Campath-1H induction plus rapamycin monotherapy for renal transplantation: results of a pilot study. Am J Transplant. 3 (6): 722-30.
5. Troxell, M.L. *et al.* (2010) Pancreas allograft rejection: analysis of concurrent renal allograft biopsies and posttherapy follow-up biopsies. Transplantation. 90: 75-84.
6. Rowe, P. *et al.* (2013) Increased complement activation in human type 1 diabetes pancreata. Diabetes Care. 36 (11): 3815-7.
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8. Lattenist, L. *et al.* (2013) Renal and urinary levels of endothelial protein C receptor correlate with acute renal allograft rejection. PLoS One. 8 (5): e64994.
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11. Roden, A.C. *et al.* (2016) Transbronchial Cryobiopsies in the Evaluation of Lung Allografts: Do the Benefits Outweigh the Risks? Arch Pathol Lab Med. 140 (4): 303-11.
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13. Jain, D. *et al.* (2017) Detection of T and B cells specific complement-fixing alloantibodies using flow cytometry: A diagnostic approach for a resource limited laboratory. Asian J Transfus Sci. 11 (2): 171-9.
14. Verghese, P.S. *et al.* (2018) The clinical implications of the unique glomerular complement deposition pattern in transplant glomerulopathy. J Nephrol. 31 (1): 157-64.

Further Reading

1. Makinde, V.A. *et al.* (1989) Reflection of disease activity in rheumatoid arthritis by indices of activation of the classical complement pathway. Ann Rheum Dis. 48 (4): 302-6.
2. Stoltzner, S.E. *et al.* (2000) Temporal accrual of complement proteins in amyloid plaques in Down's syndrome with Alzheimer's disease. Am J Pathol. 156 (2): 489-99.
3. Sacks, S.H. & Chowdhury, P. (2002) Footprints of humoral rejection. Curr Opin Nephrol Hypertens. 11 (6): 627-8.

4. Racusen, L.C. *et al.* (2003) Antibody-mediated rejection criteria - an addition to the Banff 97 classification of renal allograft rejection. Am J Transplant. 3 (6): 708-14.
5. Yang, Y. *et al.* (2004) The intricate role of complement component C4 in human systemic lupus erythematosus. Curr Dir Autoimmun. 7: 98-132.
6. Troxell, M.L. & Lanciault, C. (2016) Practical Applications in Immunohistochemistry: Evaluation of Rejection and Infection in Organ Transplantation. Arch Pathol Lab Med. 140 (9): 910-25.

Storage	This product is shipped at ambient temperature. It is recommended to aliquot and store at -20°C on receipt. When thawed, aliquot the sample as needed. Keep aliquots at 2-8°C for short term use (up to 4 weeks) and store the remaining aliquots at -20°C. Avoid repeated freezing and thawing as this may denature the antibody. Storage in frost-free freezers is not recommended.
Guarantee	12 months from date of despatch
Health And Safety Information	Material Safety Datasheet documentation #10077 available at: https://www.bio-rad-antibodies.com/SDS/2222-8004
Regulatory	For research purposes only

Related Products

Recommended Secondary Antibodies

Goat Anti Mouse IgG IgA IgM (STAR87...)	HRP
Goat Anti Mouse IgG (STAR70...)	FITC
Goat Anti Mouse IgG (STAR77...)	HRP
Goat Anti Mouse IgG (STAR76...)	RPE
Goat Anti Mouse IgG (Fc) (STAR120...)	FITC, HRP
Goat Anti Mouse IgG (H/L) (STAR117...)	Alk. Phos., DyLight®488, DyLight®550, DyLight®650, DyLight®680, DyLight®800, FITC, HRP
Rabbit Anti Mouse IgG (STAR12...)	RPE
Rabbit Anti Mouse IgG (STAR13...)	HRP
Rabbit Anti Mouse IgG (STAR9...)	FITC

Recommended Negative Controls

MOUSE IgG1 NEGATIVE CONTROL (MCA928)

Product inquiries: www.bio-rad-antibodies.com/technical-support

To find a batch/lot specific datasheet for this product, please use our online search tool at: bio-rad-antibodies.com/datasheets

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