

Complement

Monoclonal Antibodies: Murine Anti-Human C4 Binding Protein

For Research Use Only. Not for use in Diagnostic Procedures.

Background

Activation of the classical complement pathway begins with the binding of an activating substance (e.g. immune complex) to the C1q molecule of C1. This, in turn, activates the C1r(2)C1s(2) sub-units, resulting in cleavage of C4 to C4b near the amino terminus of the gamma chain releasing C4a in the process. The short-lived C4b molecule can bind covalently to membranes or other surfaces via either an amide or ester bond. This is an inefficient process that is limited to the immediate vicinity of the C1 complex. C4b then takes part in the classical convertase enzyme. Because of the short life of the C4b molecule, much of the C4d is free and circulates in serum.

Both bound and free C4b are strictly controlled *in vivo*. The ability of C4b to participate in classical pathway activation and opsonization reactions is inhibited by a single site cleavage of the alpha chain by Factor I. This reaction requires either C4 binding protein or CR1 as a cofactor. This initial cleavage inactivates C4b resulting in iC4b. Further degradation of this molecule by Factor I produces the C4c and C4d fragments. Both of these fragments can be produced in fluid phase or on target surface.

Specificity

The specificity of the monoclonal antibody was established via a series of immunoassays. First, the antibody was shown by ELISA to bind purified C4 Binding Protein (C4BP) immobilized in microtiter wells. Second, free (unbound) C4BP and human serum were shown via inhibition EIA to inhibit the binding of this antibody to immobilized C4BP. Other complement proteins, including C4, did not inhibit binding.

Applications

Because specific techniques differ from lab to lab, the provided information should be used as a guideline only.

EIA ¹	RIA	IHC ²	WB	FACS ³
>1:10,000	N/T	>1:1000	>1:1,000	N/T

N/T = Not tested.

Specifications

Catalog Number:	A215
Concentration:	1.0-1.2 mg/ml
Purity:	≥ 95% by SDS PAGE
Volume/Vial:	100 µl
Storage:	
≤ 30 Days	2-8 °C
> 30 Days	≤ -20 °C
Buffer:	Borate Buffered Saline (pH 8.4 ± 0.2)
Isotype:	IgG _{2b} k

Species Cross Reactivity: Human, baboon.

References

- 1 On file with Quidel Corporation.
- 2 Roos, A. et al. Glomerular activation of the lectin pathway of complement in IgA nephropathy is associated with more severe renal disease. *J Am Soc Nephrol* 17:1724-1734 (2006).
- 3 Grosskinsky, S. et al. Human complement regulators C4b-Binding Protein and C1 Esterase Inhibitor interact with a novel outer surface protein of *Borrelia recurrentis*. *PLoS Neglected Tropical Diseases* 4(6):e698 (2010)

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