Complement

Technical
Data Sheet

Monoclonal Antibodies:
Murine Anti-Human C4d (neoantigen)

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

Background

Activation of the classical complement pathway begins with 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.

The specificity of the monoclonal antibody was established via a series of immunoassays that utilized highly purified C4, C4c and C4d. First, the antibody was shown by ELISA to bind to purified C4d immobilized in microtiter wells. Second, C4b, iC4b, C4d and human serum, but not C4c or intact C4, were shown (via inhibition EIA) to inhibit the binding of this antibody to immobilized C4d. Similarly, using radiolabeled C4c and C4d, this antibody was shown to immunoprecipitate C4d, and not C4c.

Applications

Because specific techniques differ from lab to lab, the provided information should be used as a guideline only. (Data on File at Quidel.)
As C4b has a short half life *in vivo*, C4d is an excellent marker for classical complement activation *in vivo* or *in vitro* and is therefore the basis of the MicroVue™ C4d EIA Kit (Cat. A008).

EIA	RIA	IHC	WB	FACS
< 20 Ìg/ml	N/T	>1:100	1:1,000	N/T

N/T = Not tested.

Specifications

Catalog Number:	A251
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:	IgG1k

References

1 Yasojima, K. et al. "Up Regulated Production and Activation of the Complement System in Alzheimer's Disease Brain" Am J Path 154:927-935 (1999).
2 Baldwin, W. et al. "Complement deposition in early cardiac transplant biopsies is associated with ischemic injury and subsequent rejection episodes." Transplantation 68(6) 894-900 (1999).
3 Rosoklija, G.B. et al. "Local activation of the complement system in endoneurial microvessels of diabetic neuropathy" Acta Neuropath 99:55-62 (2000).

Ordering and Additional Information

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Related Products

MicroVue™ C4d EIA Kit	A008
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Monoclonal anti-Human C4(C4d) 0.5 ml	A253
Purified Human C4 Protein	A402
Monoclonal anti-Human C4(C4d) biotin labeled	A704

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