

# Complement

## Monoclonal Antibodies: Murine Anti-Human C4/C4d

**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.

### Applications

Because specific techniques differ from lab to lab, the provided information should be used as a guideline only. **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 (Item A008).**

EIA <sup>1</sup>	RIA	WB <sup>2</sup>	IHC <sup>2-4</sup>	FACS <sup>5,6</sup>
< 20 µg/ml	N/T	>1:100	1:1000	>1:100

N/T = Not tested.

### Specifications

Catalog Number:	A213
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 <sub>1</sub> k

**Species Cross Reactivity:** Bovine, cat, dog, guinea pig, mouse, rabbit, sheep and rat.

### References

- 1 On file with Quidel Corp
- 2 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).
- 3 Stoltzner, S.E. Temporal Accrual of Complement Proteins in Amyloid Plaques in Down's Syndrome with Alzheimer's Disease. *Am J Path* 156:489-499 (2000).
- 4 Desvaux, D. et al. Acute Renal Allograft Rejection with Major Interstitial Oedema and Plasma Cell-rich Infiltrates: High  $\alpha$ -interferon Expression and Poor Clinical Outcome. *Nephrol Dial Transplant* 19:933-939 (2004).
- 5 Nordstrom, T., et al. The Emerging Pathogen *Moraxella Catarrhalis* Interacts with Complement Inhibitor C4b Binding Protein through ubiquitous surface proteins A1 and A2. *J Immunol* 173:4598-4606 (2004).

6 Gemmell, C. A Flow Cytometric Immunoassay to Quantify Adsorption of Complement Activation Products on Artificial Surfaces. *J Biomed Mater Res* 37, 474-480 (1997).

### Ordering and Additional Information

To learn more about this and other Quidel products visit our website [www.quidel.com](http://www.quidel.com) or contact Technical Services at 1.800.524.6318

### Related Products

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Monoclonal Anti-Human C4d (neoantigen)	A251
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Monoclonal Anti-Human C4(C4d) biotin labeled	A704



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