

# Product Sheet



# QVQ

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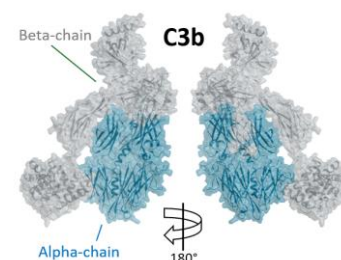
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## Complement component C3b

**Catalog no.:** Q119c  
**Clone name:** IDHDC3b-1F12

**Product:** Single-domain antibody directed against complement protein C3b  
**Target:** The complement system plays a crucial role in immune defense. It is activated via three pathways: the classical pathway (CP), the lectin pathway (LP), and the alternative pathway (AP), resulting in opsonisation, chemoattraction of immune cells and target cell lysis.<sup>1,2</sup> Complement component C3, a 185 kDa protein consisting of two disulfide linked chains, is a blood circulating protein with a central role in the complement system.<sup>1,2</sup> During all three activation pathways C3 is cleaved by C3 convertases into C3a (9 kDa) and C3b (176 kDa). C3a acts as a chemoattractant and C3b is deposited onto pathogenic surfaces (opsonization), resulting in formation of subsequent convertase complexes and recognition by immune cells.<sup>2,3</sup>



$\alpha$  (blue) and  $\beta$  (grey) chains of complement protein C3b. PDB 2107.<sup>5</sup>

**Source:** Recombinant monoclonal single-domain antibody (Lama glama), purified from *S. cerevisiae* using affinity chromatography. Immunization with and phage-display selection on recombinant protein using total elution.<sup>4</sup>

**Specificity:** Human C3b.

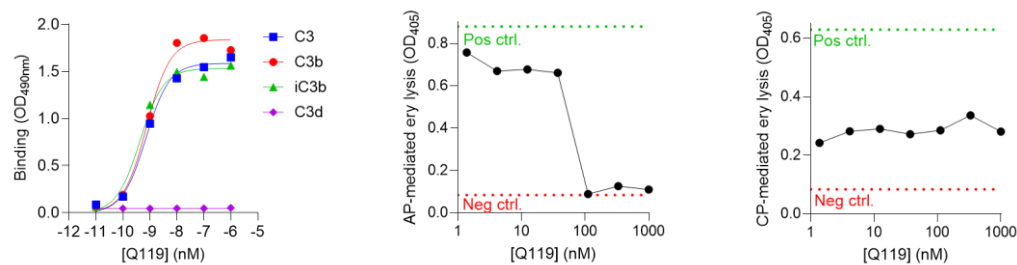
**Formulation:** 0.2  $\mu$ m filtered solution in PBS. The products are equipped with a C-terminal C-Direct tag with an unpaired cysteine for directional conjugation.

**Mol. Weight:** 13.9 kDa  
**Ext. Coeff. ( $\epsilon$ ):** 23045 M<sup>-1</sup> cm<sup>-1</sup>  
**A<sub>280</sub> at 1g/L:** 1.65

**Storage:** Shipped on blue ice. Store at 4°C or -20°C (aliquots). Addition of 0.02% sodium azide is optional.

**Applications:** ELISA

**Examples:**



Left: Binding of Q119c to recombinant C3, C3b, iC3b and C3d in ELISA. Middle: AP-mediated hemolysis of rabbit Erythrocytes in 10% human serum shows that addition of Q119 blocks AP activation. Right: CP-mediated hemolysis of antibody opsonized sheep erythrocytes in 2.5% human serum and sdAB shows that Q119 does not block CP activation.

## References:

- 1 Merle et al., (2015) Front Immunol. 6:262
- 2 Merle et al., (2015b) Front Immunol. 6:257
- 3 Holers, (2014) Ann Reviews immunol. 32:433
- 4 E. M. Struijff, 'Nanobodies targeting complement Detecting and blocking complement activation', Utrecht University, (2023)
- 5 Janssen, B et al. (2006) Nature 444:213