

Product Sheet



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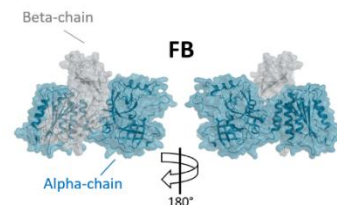
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Complement Factor B / Bb

Catalog no.: Q121c
Clone name: IDBb-1_G9

Product: Single-domain antibody directed against complement factor B
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.^{1,2} Complement factor B (fB, 93 kDa) is involved in the formation of C3 convertase C3bBb. fB binds to deposited C3b where it is recognized by factor D (fD). fD, a serine protease, cleaves factor B into fBa (33 kDa) and fBb (60 kDa), fBa is released and fBb remains bound to C3b, forming the C3 and C5 convertase C3bBb. fB is also involved in initiation of the alternative pathway, the continuous spontaneous hydrolysis of the thio-ester of native C3, converts C3 into C3b-like C3(H₂O). The latter binds fB, which then again can be activated by cleavage through fD, releasing fBa. The formed C3(H₂O)Bb is the alternative pathway C3 convertase setting downstream activations in motion.¹



α (blue) and β (grey) chains of complement Factor B. PDB 20K5.⁴

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.³

Specificity: Human factor B, human factor Bb.

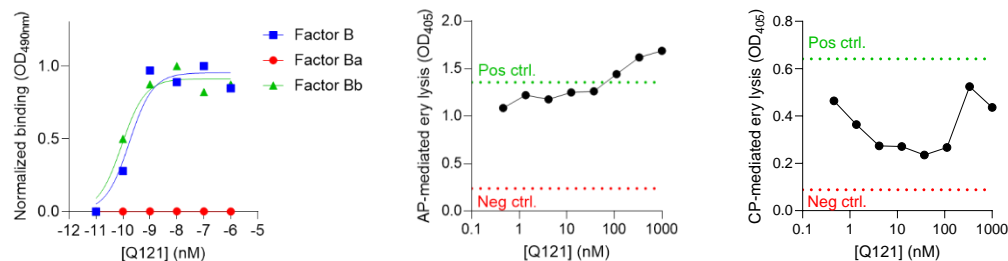
Formulation: 0.2 μm filtered solution in PBS. The products are equipped with a C-terminal C-Direct tag with an unpaired cysteine for directional conjugation.

Mol. Weight: 15.1 kDa
Ext. Coeff. (ε): 17545 M⁻¹ cm⁻¹
A₂₈₀ at 1g/L: 1.16

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 Q121c to recombinant factor B, factor Ba and factor Bb in ELISA. Middle: AP-mediated hemolysis of rabbit Erythrocytes in 10% human serum shows that addition of Q121 does not block AP activation. Right: CP-mediated hemolysis of antibody opsonized sheep erythrocytes in 2.5% human serum and sdAB shows that Q121 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 E. M. Struijf, 'Nanobodies targeting complement Detecting and blocking complement activation', Utrecht University, (2023)
- 4 Milder, F et al. (2007) Nat Struct Mol Biol 14:224