**MONOCLONAL ANTIBODY TO HUMAN COMPLEMENT FACTOR C3b/iC3b**

**Clone 3E7**

**Catalog no** HM2286 (lot number and expiry date are indicated on the label)

**Description**

Monoclonal antibody 3E7 recognizes human complement C3b/iC3b and blocks activation of the alternative pathway (AP). The complement system plays important roles in both innate and adaptive immune response and can produce an inflammatory and protective reaction to challenges from pathogens before an adaptive response can occur. There are three pathways of complement activation. The classical pathway is initiated by Immune complexes; the lectin pathway by surface bound mannan binding lectin; and the AP by all the surfaces that are not specifically protected against it. Each generates a C3 convertase, a serine protease that cleaves the central complement protein C3, and generates the major cleavage fragment C3b. The C3 and C5 convertases are enzymatic complexes that initiate and amplify the activity of the complement pathways and ultimately generate the cytolytic MAC. Upon activation of C3 two fragments are generated. The smaller anaphylatoxin C3a and the larger short lived C3b. The latter is highly reactive and can bind to complement-activating particles or immune-complexes. Unlike the classical pathway, the AP is in state of continuous activation. The AP plays an important role in tissues damage and inflammation associated with certain autoimmune diseases and with ischemia-reperfusion injury. Increasing evidence suggests blocking activation of AP can prevent or reduce certain disease pathologies and maintain host defense afforded by CP and LP. Deposition of C3b on cell surfaces can opsonize cells for destruction. Cell bound C3b can be degraded to inactive forms, iC3b and then C3dg. Antibody 3E7 shows enhanced specificity for C3b(i) attached to a cell surface and it can bind to C3b(i)-opsonized cells in whole blood. The antibody blocks AP based on its capacity to prevent C3b deposition on the surface of a variety AP activators and also inhibits AP-promoted lysis of rabbit erythrocytes, as used in the standard AP50 test. Clone 3E7 competes with factor B and H for binding to C3b-opsonized substrates. The use of 3E7 has been shown to enhance the immunotherapeutic action of Rituximab. The CP is not affected or enhanced by this antibody.

**Immunogen**

C3b(i)-Sepharose

**Species**

Mouse IgG1

**Formulation**

1 ml (100 µg/ml) 0.2 µm filtered antibody solution in PBS, containing 0.1% bovine serum albumin.

**Application**

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N.D. = Not Determined; F = Frozen sections; FC = Flow Cytometry; FS = Functional Studies; IA = Immuno Assays; IF = Immuno Fluorescence; IP = Immuno Precipitation; P = Paraffin sections; W = Western blot

**Application notes**

mAb 3E7 blocks the alternative pathway and not the classical pathway (Ref5).

**References**

1. Kennedy, A et al; An anti-C3b(i) mAb enhances complement activation, C3b(i) deposition and killing of CD20 cells by rituximab. Blood 2003, 101:3
2. Kennedy, A et al; Rituximab infusion promotes rapid complement depletion and acute CD20 loss in Chronic Lymphocytic Leukemia. Journal of Immunology 2004, 172:5
4. Risitano, AM; Paroxysmal nocturnal hemoglobinuria and other complement-mediated hematological disorders. Immunobiology 2012, 217:11
5. Lindorfer, M et al; A novel approach to preventing the hemolysis of paroxysmal nocturnal hemoglobinuria: both complement-mediated cytolysis and C3 deposition are blocked by a monoclonal antibody specific for the alternative pathway of complement. Blood 2010, 115:11
6. DiLillo, D et al; Selective and efficient inhibition of the alternative pathway of complement by a mAb that recognizes C3b/iC3b. Molecular Immunology 2006, 43:7

Use

The typical starting working dilution is 1:50. For functional studies, *in vitro* dilutions have to be optimized in user’s experimental setting.

Storage and stability

Product should be stored at 4°C. Under recommended storage conditions, product is stable for at least one year. The exact expiry date is indicated on the label.

Precautions

For research use only. Not for use in or on humans or animals or for diagnostics. It is the responsibility of the user to comply with all local/state and federal rules in the use of this product. Hycult Biotech is not responsible for any patent infringements that might result from the use or derivation of this product.