



Polyclonal Antisera:

Anti-Human C5

For **Research Use Only**. Not for use in diagnostic procedures

Background

C5, is a plasma glycoprotein which is present in normal human serum/plasma at approximately 70 µg/mL, and is key to all complement pathways. C5 is synthesized by a wide variety of cells, including liver hepatocytes, epithelial cells of the genitourinary and intestinal tract, and phagocytic mononuclear cells. The precursor protein to C5 (pro-C5) is a single chain polypeptide which undergoes proteolytic cleavage to yield the circulating form of C5. This circulating form contains 2 disulfide-bonded subunits: α – 115 kD, β – 75 kD, which gives the intact C5 protein an approximate total molecular weight of 190 kD.

Activation of the classical or alternative complement pathway results in the assembly of C5 convertase enzymes (C4b,2a,3b and C3b,Bb,C3b) on the target cell surface. Both convertase enzymes cleave C5 into C5a and C5b.

C5a is a complement-derived anaphylatoxin. It also expresses potent chemotactic activities for neutrophils and monocytes. C5 can be further cleaved and activated by a variety of non-complement proteolytic enzymes to express C5a-like biological activities without the release of a polypeptide fragment. C5a can also function as an immunoregulator, enhancing both antigen-specific and non-specific antibody response in vitro.

C5b remains bound to the C5 convertase on the cell surface. Upon interaction with C6 and C7, a C5b,C6,C7 complex is formed that partially inserts into the cell surface. It subsequently binds C8 and several C9 molecules to form the C5b-9 complex, also known as the Membrane Attack Complex (MAC) which causes irreversible target cell damage.

C5 convertase enzymes can be assembled in solution (with cobra venom factor or on particles which do not have a membranous surface and lack a C5b-9 binding site). In these cases, the C5b-9 complex disassociates from the C5 convertase and combines with S-proteins to form a soluble SC5b-9 complex. This complex has no known membranolytic function.

Characterization

Highly purified human C5 was isolated from normal serum and used to immunize goats. The anti-human C5 polyclonal antisera was tested against normal human plasma by double immunodiffusion, one-dimensional immunoelectrophoresis, quantitative radial immunodiffusion, and quantitative rocket immunoelectrophoresis. The antiserum was determined to be monospecific for C5 at varying concentrations.

Applications

Applications of the C5 polyclonal antisera have been evaluated by various research facilities, and include, Western Blot,^{1,2} IHC,^{3,4} Immunofluorescence,⁵ and Flow Cytometry.⁶

Specifications

- Volume/vial: 2.0 mL
- Storage: 2°C to 8°C* (≤ 30 days)
- Form: Whole Antiserum
- Preservative: ≤ 0.1% Sodium Azide

Species Cross Reactivity:

- Baboon, Dog, Horse, Rabbit, Guinea Pig, Rat, Mouse, Cat, Hamster, Pig, Rhesus macaque

*For long-term storage (> 30 days), aliquot and store at ≤ -20°C. Avoid repeated freeze-thaw.

References

- ¹Yasojima, K., et al. "Up-Regulated Production and Activation of the Complement System in Alzheimer's Disease Brain." *Am. J. of Pathology* (1999): 927-936.
- ²Lu, X., Pet al. "Decay-Accelerating Factor Attenuates C-Reactive Protein-Potentiated Tissue After Mesenteric Ischemia/Reperfusion." *J. of Surgical Research* (2010): 1-13.
- ³Duce, J., et al. "Activation of Early Components of Complement Targets Myelin and Oligodendrocytes in the Aged Rhesus Monkey Brain." *Neurobiology of Aging*

(2006): 633-644.

⁴Rother, R., et al. "C5 Blockade with Conventional Immunosuppression Induces Long-Term Graft Survival in Presensitized Recipients." *Am. J. of Transplantation* (2008): 1129-1142.

⁵Jansen, J., et al. "Extensive Complement Activation in Hereditary Porcine Membranoproliferative Glomerulonephritis Type II." *Am. J. of Path.* (1993): 1356-1365.

⁶Yin, D., et al. "Cutting Edge: NK Cells Mediate IgG1-Dependent Hyperacute Rejection of Xenografts." *J. of Immunology* (2004): 7235-7238.

Anti-Human C5 – Cat. #A306

Also available:

MicroVue SC5b-9 Plus EIA – Cat. #A020

MicroVue C5a EIA – Cat. #A021

C5 Depleted Serum – Cat. #A501

C5 Proteins – Cat. #A403

MoAbs: Anti-human C5 – Cat. # A217

Anti-human SC5b-9 9TCC – Cat. #A239

Biotinylated moAb: Anti-human C5 – Cat. #A705

