



Polyclonal Antisera: Anti-Human C9

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

Background

C9 is a glycoprotein which is present in normal human serum/plasma at approximately 55 µg/mL. Primarily synthesized in the liver, C9 is a single-chain protein with a molecular weight of approximately 71 kD. This complement protein is amphiphilic in nature, and can be fragmented by human α -thrombin to produce C9a and C9b. The hydrophilic domain of the C9 complex becomes the C9a fragment and has an approximate molecular weight of 34 kD. The hydrophobic end becomes C9b fragment, which has an approximate molecular weight of 37 kD.

With activation of the classical or alternative pathways of the complement system, C5 convertase cleaves the C5 chain into C5a and C5b. C5b remains bound to the convertase and will combine with C6 to form a C5b,6 complex. This complex normally interacts with C7 to form C5b,6,7 that becomes partially embedded in the target cell outer membrane.

The C5b,6,7 complex will subsequently bind C8 and multiple C9 molecules completing the terminal pathway. The binding of C8 increases the hydrophobic binding sites expressed in the complex. Increased hydrophobicity results in the partial insertion of the C5b-8 complex into the interior of the target cell membrane bilayer. Further binding of the C9 molecules increases the hydrophobicity of the entire C5b-9 complex, which results in the disruption of the membrane structure and causes irreversible loss of membrane function. The C5b,6,7,8,9, or C5b-9 complex, is also known as the Membrane Attack Complex (MAC), which causes irreversible damage to the target cell membrane.

Characterization

Highly purified human C9 was isolated from normal serum and used to immunize goats. The anti-human C9 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 C9 at varying concentrations.

Applications

Applications of the C9 polyclonal antisera have been evaluated by various research facilities, and include Western Blot,¹ Immunodepletion,² Immunofluorescence,^{3,4,5} IHC,^{6,7} and ELISA.⁸

Specifications

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

Species Cross Reactivity:

- Baboon, Horse, Rabbit, Hamster, Rhesus macaque

*For long-term storage (> 30 days), aliquot and store at \leq -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.

²Lehto, T., et al. "Binding of Human and Rat CD59 to the Terminal Complement Complexes." *Immunology* (1997): 121-128.

³Meri, S., et al. "Activation of the Alternative Pathway of Complement by Monoclonal Light Chains in Membranoproliferative Glomerulonephritis." *J. of Experimental Med.* (1992): 939-950.

⁴Hakulinen, J., et al. "Shedding and Enrichment of the Glycolipid-Anchored Complement Lysis Inhibitor Protectin (CD59) Into Milk Fat Globules." *Immunology* (1995): 495-501.

⁵Narkio-Makela, M., et al. "Complement Activation and Expression of Membrane Regulators in the Middle Ear Mucosa in

Otitis Media with Effusion." *Clinical and Experimental Immunology* (1999): 401-409.

⁶Duce, J., et al. "Activation of Early Components of Complement Targets Myelin and Oligodendrocytes in the Aged Rhesus Monkey Brain." *Neurobio. of Aging* (2006): 633-644.

⁷Truow, L., et al. "C4b-Binding Protein is Present in Affected Areas of Myocardial Infarction During the Acute Inflammatory Phase and Covers a Larger Area than C3." *PLOS One* (2008).

⁸Abdulla, S. Developmental Innate Immunoinsufficiency: *Comparison of Term Neonatal Neutrophil Proteinases and Complement Component Levels Relative to Adults*. Diss. Cardiff University School of Medicine, United Kingdom, 2012.

Also available:

MoAbs: Anti-human C9 – Cat. # A223

Anti-human Sc5b-9 – Cat. #A239

Biotinylated MoAb: Anti-human C9 – Cat. #A709

C9 Depleted Serum – Cat. #A505

C9 Protein – Cat. #A407

