Human C1q

Synonyms: Component C1q, Complement C1q, Complement Component C1q, C1q.

PLEASE NOTE: ALWAYS CENTRIFUGE VIAL BEFORE OPENING

Size	Order#	Lot#	Expiry Date
200 µg	4800.959.200		
1 mg	4800.959.199		
10 mg	4800.959.109		

Please enquire for bulk quantities and other vial sizes.

Description

Human Complement Component C1q derived from human plasma has a molecular mass of 410 kDa. C1q is the first component of the classical pathway of complement activation. C1q along with the enzymatically active compo- nents C1r and C1s in the ratio of 1:2:2 form the C1 complex. When C1 binds to immunoglobulins in the form of immune complexes, it leads to activation of C1r and C1s proteases and a further activates the classical pathway of complement. C1q is a glycoprotein that belongs to the collectin family, having a molecular weight of about 410- 462 kDa. C1q is composed of 18 polypeptide chains (six A, six B, six C) (MW 460 kDa). All contain an 81-aa collagen-like region composed of (Gly-Xaa-Yaa) repeating sequences close to the N-terminus. Three chains (A1B1C1) form a triple helix with the C-terminus forming the globular heads which may be structurally and function- ally distinct domains.C1q is a hexamer composed of globular heads attached to collagen-like triple-helix tails. The globular heads of C1q exclusively bind to the CH2 domain of IgG molecules or the CH3 domain of IgM. Each heavy chain of the immunoglobulin molecule contains a single binding site for C1q. Given that C1q must bind to no less than two heavy chains in order to alter its conformation and activate C1r and C1s, its activation follows only after binding to immunoglobulins in the form of immune complexes bound to multivalent antigens. C1q's main physiolog- ical role is in the clearance of immune complexes and apoptotic bodies from the organism. Interruption of this process may lead to development of autoimmunity. Individuals with genetic deficiencies of C1q or other components of the classical pathway are at risk to develop SLE. C1q specifically binds to apoptotic bodies of human keratino- cytes, vascular endothelial cells and lymphocytes. Complement components C1q and bound C3 mediate the clear- ance of apoptotic bodies. Hence, C1q may advance the clearance of autoantigens, avoiding stimulation of the immune system. Nonetheless, an extended exposition of the immune system to the neoepitope exposed on C1q molecules bound to immune complexes or apoptotic bodies could ultimately lead to an autoimmune response against C1q itself and to an altered complement function. C1q deficiency may also lead to disruption of the negative selection of autoreactive B cells. C1q along with other specific recognition proteins bind to the highly conserved lupus antigens (dsDNA and nuclear proteins) and activate the complement system. Autoantibodies against C1q (anti-C1q) are found in a number of autoimmune and infectious diseases like glomerulonephritis (GN) and lupus erythematosus (SLE), these antibodies are significant in clinical practice due to their negative predictive value.

- **Source** Human Plasma
- **Purity** ≥ 99 % (SDS-PAGE)
- **Endotoxin Level** ≤ 0.1 ng/µg (≤ 1 EU/µg)
- **Stabilizer** None
- **Buffer** HEPES (10mM), NaCl (300mM); pH 7.2*
- **Physical State** Sterile filtered solution

Human Virus Test

FDA approved Plasma from each donor has been tested and found negative for antibodies to HIV-1, HIV-2, HCV and non-reactive for HBsAg.

*The Buffer may vary depending on the Lot #. Please contact our technical support if you have specific requirements.

ORDERING
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Stability

The vial with the original concentration can be stored at 4°C if entire vial will be used within 2-4 weeks, or frozen at -20°C for longer periods of time. For long term storage we recommend to add a carrier protein (0.1 % HSA, order number: 2835.955.xyz or 2835.958.xyz, or BSA, order number: 2835.919.xyz). Please avoid repeated freeze-thaw cycles.

Applications

Complement component C1q is an important regulator factor for platelet activation. This has been a topic for research, as platelet-leukocyte aggregates play an important role in inflammatory conditions such as coronary heart disease. In particular, C1q has been shown to inhibit collagen induced aggregation and enhance production of reactive oxygen species (ROS).

Usage: For research use only. Not for use in diagnostic or therapeutic procedures. Not for human use.

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