

Product Information

Complement component C1q from human serum

Catalog Number **C1740**

Storage Temperature $-70\text{ }^{\circ}\text{C}$

Product Description

Complement C1q is a collagen-like protein with an important role in recognition of immune complexes, and thus the beginning of the classical complement pathway.¹ C1q interacts with C1r and C1s through a calcium ion to form the complement component C1.^{2,3} Each component has a distinct function. The binding of C1q to the Fc portion of an immunoglobulin results in activation of C1r, which in turn activates the C1s to yield the fully active C1 complement.⁴⁻⁶

Human complement C1q has a molecular mass of ~460 kDa.¹ C1q is composed of 18 polypeptide chains, 6 each of 3 different polypeptide chains (A, B, C). The A and B chains are arranged into 6 (A-B) dimers with disulfide linkages. The C chains are arranged into 3 (C-C) dimers with disulfide linkages. Overall, the 18 chains are arranged into 6 heterotrimers (A-B:C).⁷

The A, B, and C chains have the following individual molecular mass values, following analysis by reducing SDS-PAGE:⁷

- A-chain: ~31 kDa
- B-chain: ~29.7 kDa
- C-chain: ~26.1 kDa

Post-translational modifications of human complement C1q have been investigated via mass spectrometry.⁸ The crystal structure of the globular domain of C1q, which is key to the recognition properties of C1q, has been reported.^{9,10}

The product is supplied in a solution of 10 mM HEPES with 0.3 M NaCl, pH 7.2.

Purity: $\geq 95\%$ (SDS-PAGE)

Activity: $\geq 150,000$ C1qH50 units/mg protein

Unit definition: One C1qH50 unit is defined as the amount of complement C1q required to yield 50% lysis of 3×10^7 antibody sensitized sheep erythrocytes using complement C1q-deficient serum.

Additional information on this and related complement products is available from the Sigma Enzyme Explorer at the following page:

<https://www.sigmaaldrich.com/life-science/metabolomics/enzyme-explorer/cell-signaling-enzymes/complement-proteins.html>

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the product at $-70\text{ }^{\circ}\text{C}$. Repeated freezing and thawing is **not** recommended.

References

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CS, RBG, GCY, MAM 09/18-1