Name:	**C1q Protein (Mouse)**
Catalog Number:	**M099**
Sizes Available:	100 µg/vial
Concentration:	1.0 mg/mL (see Certificate of Analysis for actual concentration)
Form:	Frozen liquid
Purity:	$\geq$ 85% by SDS PAGE
Buffer:	10 mM HEPES, 300 mM NaCl, pH 7.2
Extinction Coeff.	$A_{280\ nm}$ = 0.753 at 1.0 mg/ml for pure C1q
Molecular weight:	439,500 Da (18 chains)
Preservative:	None, 0.22 µm filtered.
Storage:	-70°C or below. Avoid freeze/thaw.
Source:	Normal mouse serum from healthy animals of mixed gender
Precautions:	Use normal precautions for handling animal blood products.
Origin:	Manufactured in the USA.

General Description

Mouse C1q is purified from pooled normal mouse serum. C1q is part of the C1 complex, which is the first complement component in the classical pathway of complement. The C1 complex is a non-covalent assembly of three different proteins (C1q, C1r, and C1s) bound together in a calcium-dependent complex. C1q has six extended arms with domains at the end of each arm that bind to the Fc domains of immunoglobulins such as IgG or IgM. When antibodies bind to antigens, forming immune complexes, they cluster allowing two or more of the six C1q arms to bind to the Fc domains of antibodies. The binding of multiple arms of C1q to immune complexes causes the two C1r proteins in the complex (protease zymogens) to auto-activate. The activated C1r proteases cleave and activate the two C1s protease zymogens in the complex. The activated C1s cleaves complement component C4 releasing C4a and initiating covalent attachment of C4b to the activating surface. Activated C1s also cleaves C2 and the larger fragment of C2 binds to the surface-attached C4b forming C4b,C2a, the C3/C5 convertase of the classical pathway.

Physical Characteristics & Structure

The molecular weight of mouse C1q as determined by SDS/polyacrylamide gel electrophoresis has been reported to be 439,500 $\pm$ 1586 by Yonemasu, K. and Sasaki, T. (1981) and about 410,000 by Seino, J. et al., (1984). Mouse C1q is a high molecular weight complex of 18 polypeptide chains. Each of the six arms of mouse C1q contains three chains, an A chain (22,400 daltons), a B chain (23,250 daltons) and a C chain (22,500 daltons) as determined by SDS/polyacrylamide gel electrophoresis (Yonemasu, K. and Sasaki, T. (1981)).

Function

The biological functions of C1q are described above in the General Description and Physical Characteristics sections.

Applications

Mouse C1q can be used to coat ELISA plates to capture and quantitate immune complexes in samples from mouse models used for studying immune complex related diseases and conditions.

Genetics

The NCBI Gene ID numbers for mouse C1q are: C1q A chain (12259**)**, C1q B chain (12260), and C1q C chain (12262). The genes for C1q chains A, B and C are all located on chromosome 4.

Precautions/Toxicity/Hazards

This protein is purified from animal plasma/serum and therefore precautions appropriate for handling any animal blood-derived product must be used.

References

Yonemasu, K. and Sasaki, T. (1981) Purification and characterization of subcomponent C1q of the first component of mouse complement. Biochem. J. **193**, 621-629.

Seino, J., Fukuoka, Y., Okuda T., and Tachibana, T. (1984). Isolation, molecular properties and allotype of mouse C1q. Tohoku J. exp. Med. **142**, 351-361.

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