

## Native Rat C3 Protein

Cat. No. C3-08R Lot. No. (See product label)

### SPECIFICATION

#### Product Overview

Rat C3 is purified from pooled normal rat serum.  
Extinction Coefficient: A<sub>280 nm</sub> = 10.16 at 1.0 mg/mL for pure C3

#### Species

Rat

#### Source

Rat Serum

#### Description

C3 is central to the activation of all three pathways of complement activation. Initiation of each pathway generates proteolytic enzyme complexes (C3 convertases) which are bound to the target surface. These enzymes cleave a peptide bond in C3 releasing the anaphylatoxin C3a and activating C3b. For a brief time (~60 μs) this nascent C3b is capable of reacting with and covalently coupling to hydroxyl groups on the target surface. Carbohydrates are the favored target, but protein hydroxyls and amino groups also react. This process of tagging the target surface with C3b is called opsonization. The reactive site in nascent C3b is a thioester and C3b is linked to the target through a covalent ester bond (an amide bond is formed if C3b is attached to amino groups). Most of the C3 activated during complement activation never attaches to the surface because its thioester reacts with water forming fluid phase C3b which is rapidly inactivated by factors H and I forming iC3b. Surface-bound C3b is necessary in all three pathways for efficient activation of C5 and formation of C5b-9 complexes that lyse the target cell membrane. Surface-bound C3b and its breakdown products iC3b and C3d are recognized by numerous receptors on lymphoid and phagocytic cells which use the C3b ligand to stimulate antigen presentation to cells of the adaptive immune system. The end result is an expansion of target-specific B-cell and

 Tel: 1-631-559-9269 1-516-512-3133

 Email: [info@creative-biomart.com](mailto:info@creative-biomart.com)  Fax: 1-631-938-8127

 45-1 Ramsey Road, Shirley, NY 11967, USA

	T-cell populations.
<b>Form</b>	Frozen liquid
<b>Molecular Mass</b>	187 kDa (2 chains)
<b>Purity</b>	> 85% by SDS-PAGE
<b>Storage</b>	At -70 centigrade or below. Avoid freeze/thaw.
<b>Concentration</b>	1 mg/mL
<b>Storage Buffer</b>	10 mM sodium phosphate, 145 mM NaCl, pH 7.2
<b>Preservative</b>	None, 0.22 µm filtered.

## GENE INFORMATION

<b>Gene Name</b>	C3 complement C3 [ <i>Rattus norvegicus</i> (Norway rat) ]
<b>Official Symbol</b>	C3
<b>Synonyms</b>	C3; complement C3; complement C3; complement component 3; EC 3.4.21.43
<b>Gene ID</b>	24232
<b>mRNA Refseq</b>	NM_016994
<b>Protein Refseq</b>	NP_058690
<b>UniProt ID</b>	P01026

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