Active Native Human C1S Enzyme

Cat. No. C1S-550H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	C1s enzyme is a high molecular weight, two chain, trypsin-like protease composed of disulfide-linked chains of 58,000 and 28,000 daltons. C1s is present in plasma at 31 µg/mL. C1s proenzyme is a high molecular weight, single chain, trypsin-like zymogen (86,000 daltons). C1s proenzyme is activated by C1r enzyme. Two C1r form a C1r-C1r complex in the presence of calcium which in turn forms a stable complex with two C1s molecules in the presence of calcium. This tetramer can exist in solution, but in the presence of C1q it binds to C1q forming the C1 complex which is stable in the presence of calcium. C1r self-activation, and subsequent C1s activation, is controlled by a weak association of C1r with C1esterase inhibitor (C1-INH) when it is in the C1 complex and similar stabilization occurs with purified C1r. C1s and C1r enzymes, however, are irreversibly inactivated by binding to C1-INH.
Species	Human
Description	C1s enzyme is the activated form of C1s proenzyme. C1s is a subunit of the C1 complex which is the first complement component in the classical pathway of complement. C1s proenzyme is an inactive zymogen until C1 is activated. C1s proenzyme is activated when C1 binds to and is activated by antibodies bound to antigens (immune complexes) yielding C1r enzyme, the first protease that initiates the cascade. C1r enzyme in the C1 complex activates C1s proenzyme generating C1s enzyme. C1 complex is a non-covalent calcium-dependent complex of one C1q, two C1r and two C1s molecules. C1q binds by two or more of its six arms to the Fc domains of IgG or IgM. The binding of multiple arms to immune complexes causes the two C1r proteins in the complex (protease zymogens) to activate producing two

Tel: 1-631-559-9269 1-516-512-3133
Email: info@creative-biomart.com Fax: 1-631-938-8127
45-1 Ramsey Road, Shirley, NY 11967, USA

	proteases that cleave and activate the two C1s proenzymes in the complex. This activation of C1s proenzyme results in its cleavage into the two chain C1s enzyme with 58,000 and 28,000 dalton fragments. Activated C1s enzyme 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.
Form	Frozen liquid
Bio-activity	>90 % C1s will bind with excess C1-INH.
Molecular Mass	86,000 Da (2 chains)
Endotoxin	This protein is purified from human serum and therefore precautions appropriate for handling any blood-derived product must be used even though the source was shown by certified tests to be negative for HBsAg, HTLV-I/II, STS, and for antibodies to HCV, HIV-1 and HIV-II.
Purity	≥90 % by SDS PAGE (Note: C1s enzyme is 86,000 unreduced, but upon reduction runs as 58,000 and 28,000 chains on SDS PAGE).
Storage	Store it at -70°C or below. Avoid freeze/thaw.
Concentration	1.0 mg/mL
Storage Buffer	50 mM sodium phosphate, 130 mM NaCl, pH 7.2.
Preservative	None, 0.22 μm filtered.

GENE INFORMATION

Tel: 1-631-559-9269 1-516-512-3133
Email: info@creative-biomart.com Fax: 1-631-938-8127
45-1 Ramsey Road, Shirley, NY 11967, USA

Gene Name	C1S complement component 1, s subcomponent [Homo sapiens]
Official Symbol	C1S
Synonyms	C1S; complement component 1, s subcomponent; complement C1s subcomponent; C1 esterase; basic proline-rich peptide IB-1; complement component 1 subcomponent s; FLJ44757;
Gene ID	716
mRNA Refseq	NM_001734
Protein Refseq	NP_001725
MIM	120580
UniProt ID	P09871
Chromosome Location	12p13
Pathway	Classical antibody-mediated complement activation, organism-specific biosystem; Complement Activation, Classical Pathway, organism-specific biosystem; Complement and Coagulation Cascades, organism-specific biosystem; Complement and coagulation cascades, organism-specific biosystem; Complement and coagulation cascades, conserved biosystem; Complement cascade, organism-specific biosystem; Creation of C4 and C2 activators, organism-specific biosystem;
Function	calcium ion binding; peptidase activity; serine-type endopeptidase activity;

Tel: 1-631-559-9269 1-516-512-3133
Email: info@creative-biomart.com Fax: 1-631-938-8127
45-1 Ramsey Road, Shirley, NY 11967, USA