ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Human Complement C3b protein

Cat # C3B17-N-100 Purified **Human** C3b protein **SIZE**: 100 ug

Human Complement component 3, C3 (alternative names include acylation-stimulating protein (ASP) C3 is encoded by gene located 19p13.3-p13.2. Because C3, C4, and C5 are strikingly similar suggesting a common evolutionary origin. C3 is an acute phase reactant. Synthesis of C3, a glycoprotein, is induced during acute inflammation. The liver is the main site of synthesis, although small amounts are also produced by activated monocytes and macrophages. A single chain precursor (pro-C3) of approximately 200 kD is found intracellularly; the cDNA shows that it comprises 1,663 amino acids. This is processed by proteolytic cleavage into alpha (~115 kda) and beta subunits (~75 kda) which in the mature protein are linked by disulfide bonds. Pro-C3 contains a signal peptide of 22 amino acid residues, the beta chain (645 residues) and the alpha chain (992 residues). The 2 chains are joined by 4 arginine residues that are not present in the mature protein. Human C3 has 79% identity to mouse C3 at the nucleotide level and 77% at the amino acid level.

Human C3 concentration in normal human serum is ~ 1.25 mg/ml. Classical and alternative activation pathways of complement converge at C3 step. Activation via either pathway can result in assembly of C3-cleaving enzymes (C3 convertases) on target surfaces. Both C3 convertases cleave the C3 a-chain at peptide bond 77 resulting in production of C3a (M.W. 9083) and C3b fragments (M.W. 180,000). Released C3a peptide is one of the three complement anaphylatoxins. The nascent C3b fragment can form a covalent ester bond with target surface. This covalent attachment of C3b to target acceptors is required for continuation of complement activation.

C3 nephritic factor, an IgG antibody against complement components, is demonstrable in some cases of partial lipodystrophy. C3-deficient homozygotes developed mesangiocapillary glomerulonephritis.

Human C3a des-arg is a single chain 76-aa peptide. Single chain, 76 amino acid peptide. Once the C3a peptide has been produced in human plasma or serum, it is rapidly converted to C3a des-Arg upon removal of the C-terminal arginine by endogenous serum carboxypeptidase N. This enzymatic process is considered to be a major mechanism for controlling C3a function in vivo because C3a des-Arg has <1% of the biological activity expressed by the C3a peptide. Therefore, C3a des-Arg can serve as a negative control molecule in experiments involved with the biological activities of the intact C3a anaphylatoxin peptide.

Source of Antigen

Human C3b was purified (>95% by SDS-PAGE, mol wt 180 Kda) from serum that has been shown by certified tests to be negative for HBsAg and for antibodies to HIV and HCV. However, all products must be treated as potentially infectious, used and disposed appropriately. Purified human C3a is supplied in 135 mM NaCl and 15 mM sodium phosphate, pH 7.2 as liquid at 1 mg/ml or lot specific concn stated on the vial or in powder form. Reconstitute powder in water at 1 mg/ml. Store at -20oC or below.

Stability: 6-12 months at –20oC or below.

Shipping: 4oC for solutions and room temp for powder

Recommended Usage

Western Blotting, ELISA or other applications.

References: de Bruijn MHL (1985) PNAS 82, 708-712; Alper CA (1970) J. Clin. Invest. 49, 975-1985; Ajees AA (2006) Nature 444, 221-225; Botto M (1992) PNAS 89, 1957-1961; MCLean RH (1980) Humn, Hered. 30, 149-154; Muller-Eberhard HJ (1958) Adv. Immunol. 8, 1-80;

*This product is for In vitro research use only.

Mouse, Rat and Dog C3 ELISA and anti-ovalbumin IgG, IgM ELISA Kits

C3, C3a, C3b purified proteins

Adipsin and Factor D proteins and antibodies

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