Recombinant Human C-Reactive Protein/CRP
Catalog Number: 1707-CR

DESCRIPTION
Source: Mouse myeloma cell line, NS0-derived
Phe17-Pro224
Accession # P02741

N-terminal Sequence Analysis: Phe17
Structure / Form: Homopentamer
Predicted Molecular Mass: 23 kDa (monomer)

SPECIFICATIONS
SDS-PAGE: Measured by its binding ability in a functional ELISA. Immobilized recombinant human (rh) Fcy RI at 2 µg/mL (100 µL/well) can bind rhCRP with a linear range of 0.15-10 µg/mL.
Endotoxin Level: <0.01 EU per 1 µg of the protein by the LAL method.
Purity: >97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation: Lyophilized from a 0.2 µm filtered solution in Tris-HCl, NaCl and CaCl$_2$ with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE
Reconstitution: Reconstitute at 200 µg/mL in sterile 20 mM Tris-HCl, pH 8.0 containing at least 0.1% human or bovine serum albumin.
Shipping: The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage: Use a manual defrost freezer and avoid repeated freeze-thaw cycles.
- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND
CRP is a member of the pentraxin family of proteins that are characterized by a cyclic pentameric structure. Human CRP gene encodes a 224 amino acids precursor. The mature human CRP protein has 206 amino acids that are non-covalently linked to form the pentameter. Human CRP shares 71% and 64% amino acid sequence homology with mouse and rat respectively.

CRP, synthesized by hepatocytes, is a major acute phase serum protein in human. IL-6, IL-1 and glucocorticoids are the major inducer of the CRP gene. In response to infection, inflammation or tissue damage, the level of CRP in human serum can increase 1,000-fold within 24-48 hours. It will come back to base level of less than 1 µg/mL very fast. Human CRP is an acute-phase serum protein that plays a role in the first line in host innate host defense. Like other pentraxins, CRP exhibits Ca$^{++}$-dependent binding to ligands. Phosphocholine (PCh), a constituent of many bacterial and fungal walls, is a principal ligand of CRP. CRP also binds to the membrane of injured cells, membrane and nuclear components of necrotic and apoptotic cells. Upon binding with the ligands, CRP is recognized by C1q and initiates the activation of complement cascade. Ligand bound CRP also binds to Fcγ RI and Fcγ RIlla on phagocytes and activates phagocytic responses. In addition to phagocytosis, CRP also can induce production of hydrogen peroxide and inflammatory cytokines, such as IL-1, IL-6 and TNF-α by monocytes. With these functions, human CRP is an important serum protein for anti-bacterial pathogen and clearance of damaged and apoptotic cells. However, in mouse, CRP is expressed at very low level and is not an acute phase reactant. Serum amyloid P component (SAP), another pentraxin, is the major acute phase serum protein in mice. It has been shown that high levels of CRP in humans is associated with an increased risk of cardiovascular diseases.

References: