Recombinant Rat C-Reactive Protein/CRP

Catalog Number: 1744-CRB

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived His20-Ser230, with a C-terminal 6-His tag Accession # P48199
N-terminal Sequence Analysis	His20
Structure / Form	Homopentamer
Predicted Molecular Mass	24 kDa (monomer)

SPECIFICATIONS

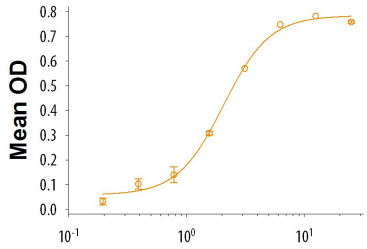
SDS-PAGE	25-38 kDa, reducing conditions
Size Exclusion Chromatography	Homopentamer purity >80%
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Rat C-Reactive Protein/CRP is present at 1 µg/mL, the concentration of Recombinant Human Fcγ RIIA/CD32a (Catalog # 1330-CD) that produces 50% of the optimal binding response is 0.5-3 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, 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, NaCl and CaCl2. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 200 µg/mL in sterile, deionized water.
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.

DATA

Bioactivity



When Recombinant Rat C-Reactive Protein/CRP (Catalog # 1744-CRB) is present at 1 µg/mL, Recombinant Human Fcγ RIIA/CD32a (Catalog # 1330-CD) binds with an ED_{50} of 0.5-3 µg/mL.

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BACKGROUND

CRP is a member of the pentraxin family of proteins that are characterized by a cyclic pentameric structure. The rat CRP gene encodes a 230 amino acid (aa) precursor with a signal peptide of 19 aa and the mature polypeptide of 211 aa. Rat CRP shares 64% and 70% aa sequence homology with human and mouse CRP respectively. Human, mouse and rabbit CRP are non-glycosylated proteins, and the units are non-covalently linked to form the pentameter. In contrast, rat CRP is a glycoprotein and contains a covalently linked dimer in the pentameter. 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, the 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 RIIa on phagocytes and activates phagocytotic responses. In addition to phagocytosis, CRP also induces the production of hydrogen peroxide and inflammatory cytokines, such as IL-1, IL-6 and TNF-α. In human and rabbits, CRP is an important acute-phase protein that plays a role in the first line of host innate defense. The level of plasma CRP at basal conditions in human and rabbits is very low, and can increase 1,000-fold within 24-48 hours in response to infection, inflammation or tissue damage. In rats, CRP exists at a high level at basal conditions and only increases about 2-fold in response to injury. CRP is not a typical acute-phase protein in rat and is a minor component in response to injury. In mice, CRP is expressed at very low levels and is not an acute phase reactant. Serum amyloid P component (SAP), another pentraxin, is an acute phase serum protein in mice.

References:

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3. Padilla, N.D. *et al.* (2003) Immunology **109**:564.
4. Volanakis, J.E. (2001) Molecular Immunology **38**:189.

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