Casein Kinase II (CK2)

1-800-632-7799
info@neb.com
www.neb.com
1-800-632-7799
info@neb.com
www.neb.com

10,000 units 500,000 U/ml Lot: 0151310 RECOMBINANT Store at –70°C Exp: 10/14

Description: Casein Kinase II (CK2) is a constitutively active serine/threonine protein kinase composed of two 44 kDa catalytic α-subunits and two 26 kDa regulatory β-subunits in an α2β2 configuration to form stable heterotetramers. CK2 holoenzyme undergoes autoprophosphorylation at two serine residues (S2/S3) of its β-subunit. Recently it has been shown that CK2 α-subunits undergo intermolecular tyrosine-autophosphorylation at Y182, which may represent a specific regulatory mechanism. Also, CK2 is able to phosphorylate, under special circumstances, tyrosyl residues in proteins. CK2 is implicated in a variety of cellular functions (1,2).

Recognition Determinants: The CK2 substrate specificity is invariably determined by multiple acidic residues located at positions between -2 and +5 relative to the target amino acid (mostly Ser and rarely Thr). The general recognition motif for phosphorylation by CK2 is SXE/D, although SXE/D and S/D, and variations of these sequences are also phosphorylated. Polyaminic compounds, like heparin, inhibit CK2 activity with a K_i of 1.4 nm (4,5).

Source: Isolated from a strain of E. coli expressing both α and β CK2 subunits derived from a human glioblastoma cDNA library (kindly provided by Dr. D. Marshak) (3).

Supplied in: 350 mM NaCl, 20 mM Tris-HCl (pH 7.5 @ 25°C), 1 mM Na_2EDTA, 2 mM DTT and 0.1% Triton X-100.

Reagents Supplied with Enzyme:

10X CK2 Reaction Buffer

Specific Activity:

Reagents Supplied with Enzyme:

10X CK2 Reaction Buffer

1X CK2 Reaction Buffer, supplement with 200 µM ATP and gamma-labeled ATP to a final specific activity of 100–500 µCi/µmol. (CK2 will also accept GTP as a phosphoryl donor in place of ATP). Incubate at 30°C.

Specific Activity:

1X CK2 Reaction Buffer:

20 mM Tris-HCl
50 mM KCl
10 mM MgCl_2
pH 7.5 @ 25°C

Note that optimal incubation times and enzyme concentrations must be determined empirically for each particular substrate.

References:


Quality Assurance: CK2 contains no detectable protease or phosphatase activities.

Quality Control Assays

Protease Activity: After incubation of 5,000 units of Casein Kinase II (CK2) with a standard mixture of proteins for 2 hours at 30°C, no proteolytic activity could be detected by SDS-PAGE analysis.

Phosphatase Activity: After incubation of 5,000 units of Casein Kinase II (CK2) with 50 mM p-nitrophenyl phosphate for 2 hours at 30°C, no phosphatase activity could be detected by spectrophotometric analysis.

References: