Product Specification

CK2α1, active
(Full-length recombinant protein expressed in Sf 9 cells)

Catalog #: 7738-5
Lot #: __________________
Aliquot size: 5 µg protein in 50 µl
Specific activity: 107 nmol/min/mg

Quality Control Analysis

Activity assessment

CK2 α 1 protein (~100 ng/µl concentration) was diluted to 20ng/µl in assay dilution buffer (4 mM MOPS, pH 7.2, 2.5 mM β-glycerophosphate, 1 mM EGTA, 0.4 mM EDTA, 4 mM MgCl₂, 0.05 mM DTT), followed by 2-fold serial dilutions, and then the 10µl diluted proteins were used to phosphorylate casein protein in the following assay condition:

10 µl diluted CK2 α 1 protein
10 µl casein (1 mg/ml stock)
5 µl [³²P] ATP mixture (250 µM ATP, 0.16 µCi/µl in 4x assay dilution buffer)

The various reaction components, except [³²P] ATP, were incubated at 30°C and the reaction started by the addition of [³²P] ATP. After 15 minutes, the reaction was terminated by spotting 20 µl of the reaction mixture onto a phosphocellulose P81 paper. The P81 paper was dried and washed several times in 1% phosphoric acid prior to counting in the presence of scintillation fluid in a scintillation counter. The actual counts, using various dilutions of the enzyme in the assay, are shown in Fig. 1.

Purity assessment

2 µg of CK2 α 1 protein was subjected to SDS-PAGE and Coomassie blue staining. The scan of the gel showed >90% purity of the CK2 α 1 band product, and the band was at ~70 kDa (Fig. 2).
Product Description
Recombinant full length human CK2 α 1 containing N-terminal GST tag was expressed by baculovirus in Sf 9 insect cells. The gene accession number is NM_001895. This material is sold for research purposes only.

Specific Activity
107 nmol phosphate incorporated into casein per minute per mg protein at 30°C for 15 minutes using a final concentration of 50 µM ATP (0.83 µCi/assay).

Formulation
Recombinant protein in storage buffer (50 mM Tris-HCl, pH 7.5, 150 mM NaCl, 0.25 mM DTT, 0.1 mM EGTA, 0.1 mM EDTA, 0.1 mM PMSF, 25% glycerol).

Storage and Stability
Store product frozen at or below -70°C. Stable for 1 year at -70°C as undiluted stock. Aliquot to avoid repeated thawing and freezing.

Scientific Background
CK2 α (also termed casein kinase II alpha) is a serine-threonine protein kinase whose targets include many critical regulators of cellular growth. It is highly expressed in a lymphoproliferative disease of cattle and in many human cancers. Overexpression of the CK2 α catalytic subunit in lymphocytes of transgenic mice leads to T cell lymphoma (1). The highest CK2 activity is found in mouse testicles and brain, followed by spleen, liver, lung, kidney and heart (2). The activity values were directly correlated with the protein expression level of the CK2α (catalytic subunit). The α subunit is only detected in brain and testicles. By contrast, Northern blot analyses of the CK2 α mRNA shows the strongest signals to be present in brain, liver, heart and lung. In kidney, spleen and testicles mRNAs is only weakly detectable. ICBP90, a transcription factor exhibiting antiapoptotic property, has several putative CK2 phosphorylation sites. ICBP90 is more efficiently phosphorylated by the free CK2 α subunit than by the heterotetrameric CK2 (alpha, beta) (3). Thus, CK2 α is an important regulator of the transcriptional activity of ICBP90 and therefore of the antiapoptotic properties of ICBP90.

References