Casein Kinase I (CK1)

**Recognition Determinants:** The most effective recognition motif for phosphorylation by CK1 is pSXXS/T where Ser in the position -3 is phosphorylated (3). Also, the clusters of 3 or 4 acidic residues ending at the position -3, preferably Asp, can specify phosphorylation by CK1. However, the substrates so formed are much poorer than those containing phosphate groups (5).

**Source:** Isolated from a strain of *E. coli* that carries a clone expressing CK1δ derived from a rat testis cDNA library (kindly provided by Dr. P.J. Roach). Two codons, Ser-318 and Arg-319, have been changed to stop codons, resulting in a truncation of the C-terminal portion of the expressed protein (2).

**Supplied in:** 100 mM NaCl, 20 mM Tris-HCl (pH 7.0 @ 25°C), 1 mM Na₂EDTA, 1 mM EGTA, 2 mM dithiothreitol, 0.1% Triton X-100 and 50% glycerol.

**Reagents Supplied with Enzyme:**

10X CK1 Reaction Buffer
2 mM dithiothreitol
0.1% Triton X-100
50% glycerol.

**Phosphatase Activity:** After incubation of 10,000 units of Casein Kinase I (CK1) with a standard mixture of proteins for 2 hours at 30°C, no proteolytic activity could be detected by SDS-PAGE analysis.

**Protease Activity:** After incubation of 10,000 units of Casein Kinase I (CK1) with a standard mixture of proteins for 2 hours at 30°C, no proteolytic activity could be detected by spectrophotometric analysis.

**Quality Control Assays**

**Protease Activity:**

After incubation of 10,000 units of Casein Kinase I (CK1) 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 10,000 units of Casein Kinase I (CK1) with 50 mM p-nitrophenyl phosphate for 2 hours at 30°C, no phosphatase activity could be detected by spectrophotometric analysis.

**References:**