



CAMK2 alpha (Human), Active

Full-length recombinant protein expressed in Sf9 cells

Cat# CY-SPC11

Lot No. C090-1
5 µg 0.1 µg/µl

Background:

CAMK2 α is a ser/thr protein kinase that is a member of the Ca²⁺/calmodulin-dependent protein kinase family. CAMK2 α is abundant in the brain as a major constituent of the postsynaptic density and is required for hippocampal long-term potentiation (LTP) and spatial learning. In addition to its Ca²⁺/calmodulin-dependent activity, CAMK2 α can undergo autophosphorylation, resulting in Ca²⁺/calmodulin-independent activity. The protein level of CAMK2 α fluctuates during neuronal activity in cultured rat pup hippocampal neurons. The levels of CAMK2 α increased with heightened neuronal activity (2).

Product Description:

Recombinant full-length human CAMK2 α was expressed by baculovirus in Sf9 cells using an N-terminal GST tag. The gene accession number is NM_171825.

Gene Aliases:

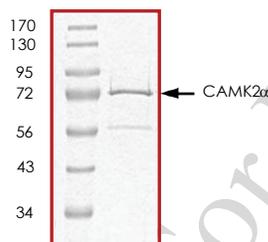
CAMKA; KIAA0968

Formulation:

Recombinant protein stored in 50mM Tris-HCl, pH 7.5, 150mM NaCl, 0.25mM DTT, 0.1mM EGTA, 0.1mM EDTA, 0.1mM PMSF, 25% glycerol.

Purity & Molecular Weight:

The purity was determined to be >80% by densitometry. Approx. MW 74kDa.



Storage:

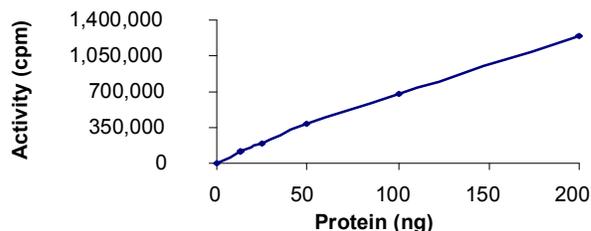
Store product at -70 °C. For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, avoid repeated handling and multiple freeze/thaw cycles.

Stability:

1 year at -70 °C from date of shipment.

**Specific Activity:**

The specific activity was determined to be 256 nmol /min/mg as per Activity Assay Protocol.

**Activity Assay Protocol:**

Assay activity of the kinase in a 25 μ L reaction consisting of 5 μ L of 5 X Kinase Assay Buffer, 7.5 μ L of 1 mg/ml the Substrate Solution, 2.5 μ L of 5mM CaCl_2 solution containing 0.75 mg Calmodulin, 5 μ L of diluted kinase and 5 μ L of 250 μ M ATP solution containing [γ - ^{32}P] ATP (0.167 $\mu\text{Ci}/\mu\text{L}$). Start the reaction by adding the ATP solution. Incubate for 15 minutes at 30°C. Terminate the reaction by spotting 20 μ L of the reaction mixture onto phosphocellulose P81 paper. Air-dry the P81 paper and sequentially wash 4 times for approximately 10 minutes each in 1% phosphoric acid with constant gentle stirring. Count the P81 paper in a liquid scintillation counter.

Substrate Solution:

Autocamide 2 synthetic peptide substrate (KKALRRQETVDAL-amide) diluted in distilled H_2O to a final concentration of 1mg/ml.

5 X Kinase Assay Buffer:

25mM MOPS pH 7.2, 12.5mM β -glycerol-phosphate, 25mM MgCl_2 , 5mM EGTA, 2mM EDTA. Add 0.25mM DTT to Kinase Assay Buffer prior to use.

References:

- 1.Silva, A J. et al: Impaired spatial learning in alpha-calcium calmodulin kinase II mutant mice. Science 257: 206-211, 1992.
- 2.Thiagarajan, T C. et al: Alpha- and beta-CaMKII: inverse regulation by neuronal activity and opposing effects on synaptic strength. Neuron 36: 1103-1114, 2002.

CycLex Co., Ltd

1063-103 Tera-Sawaoka, Ina, Nagano, Japan 396-0002

Fax: 81-265-76-7618

e-mail: info@cyclex.co.jp

URL: <http://www.cyclex.co.jp>