



## CAMK4 (Human), Active

### Full-length recombinant protein expressed in Sf9 cells

Cat# CY-SPC15

Lot No.  
5 µg 0.1 µg/µl

#### Background:

CAMK4 is a multifunctional serine/threonine protein kinase and a member of Ca<sup>2+</sup>/calmodulin-dependent protein kinase family. CAMK4 is localized in neurons in the hippocampus, amygdala, anterior cingulate cortex, somatosensory cortex, and insular cortex (1). CAMK4 is involved in neural activity-dependent signaling in the neuronal nucleus and thought to play an important role in the consolidation/retention of hippocampus-dependent long-term memory (2)

#### Product Description:

Recombinant full-length human CAMK4 was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. The gene accession number is NM\_001744.

#### Gene Aliases:

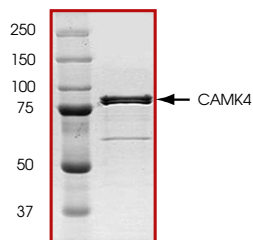
CaMK-GR, MGC36771

#### 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 >85% by densitometry. Approx. MW 79kDa.



#### Storage:

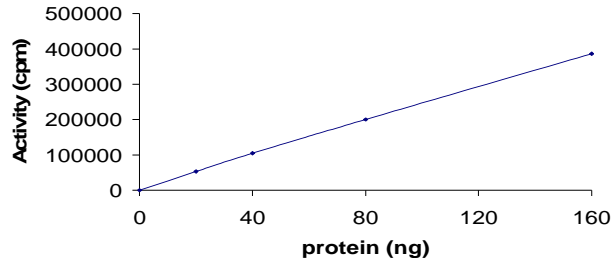
Store product at -70 °C. For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, avoid repeated handling and multiple freeze/thaw cycles.

#### Stability:

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

**Specific Activity:**

The specific activity was determined to be 92 nmol/min/mg as per Activity Assay Protocol.

**Activity Assay Protocol:**

Assay activity of the kinase in a 25  $\mu$ L reaction consisting of 5  $\mu$ L of 5 X Kinase Assay Buffer, 7.5  $\mu$ L of 1 mg/ml the Substrate Solution, 2.5  $\mu$ L of 5 mM  $\text{CaCl}_2$  solution containing 0.75 mg Calmodulin, 5  $\mu$ L of diluted kinase and 5  $\mu$ L of 250  $\mu$ M ATP solution containing [ $\gamma$ - $^{32}\text{P}$ ] 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  $\mu$ 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  $\text{H}_2\text{O}$  to a final concentration of 1 mg/ml.

**5 X Kinase Assay Buffer:**

25mM MOPS, 12.5mM  $\beta$ -glycerol-phosphate, 25mM  $\text{MgCl}_2$ , 5mM EGTA, 2mM EDTA. Add 0.25mM DTT to Kinase Assay Buffer prior to use.

**References:**

- 1.Sikela, J. M. et al: Chromosomal localization of the human gene for brain Ca (2+)/calmodulin-dependent protein kinase type IV. Genomics 4: 21-27, 1989.
- 2.Kang, H. et al: An important role of neural activity-dependent CaMKIV signaling in the consolidation of long-term memory. Cell 106: 771-783, 2001.

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