

## CAMKIV/CAMK4 Protein, Mouse (sf9, His-GST)

<b>Cat. No.:</b>	HY-P75456
<b>Synonyms:</b>	Calcium/calmodulin-dependent protein kinase type IV; CaMK IV; CAMK4; CAMK; CAMK-GR
<b>Species:</b>	Mouse
<b>Source:</b>	Sf9 insect cells
<b>Accession:</b>	P08414 (M1-Y469)
<b>Gene ID:</b>	12326
<b>Molecular Weight:</b>	Approximately 85 kDa

### PROPERTIES

<b>Biological Activity</b>	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
<b>Appearance</b>	Lyophilized powder.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution of 20 mM Tris, 500 mM NaCl, pH 7.4, 10% Glycerol. Normally 5% - 8% trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O.
<b>Storage &amp; Stability</b>	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

#### Background

CAMKIV/CAMK4 protein is a calcium/calmodulin-dependent protein kinase that functions in the CaMKK-CaMK4 signaling cascade triggered by calcium, regulating the activity of various transcription activators through phosphorylation. These transcription activators, including CREB1, MEF2D, JUN, and RORA, play crucial roles in immune response, inflammation, and memory consolidation. In the thymus, CAMKIV/CAMK4 controls the selection threshold of CD4(+)/CD8(+) double positive thymocytes during T-cell development. In CD4 memory T-cells, it is necessary for connecting T-cell antigen receptor (TCR) signaling to the production of IL2, IFNG, and IL4 by regulating CREB and MEF2. Additionally, CAMKIV/CAMK4 is involved in the differentiation and survival of osteoclasts and dendritic cells (DCs). It promotes DCs survival by linking TLR4 signaling and regulating the temporal expression of BCL2. In hippocampal neuron nuclei, CAMKIV/CAMK4 phosphorylates the transcription activator CREB1 at 'Ser-133', contributing to memory consolidation and long-term potentiation (LTP) in the hippocampus. It can activate MAP kinases, such as MAPK1/ERK2, MAPK8/JNK1, and MAPK14/p38, and stimulate transcription through the phosphorylation of ELK1 and ATF2. Additionally, CAMKIV/CAMK4 can phosphorylate CREBBP, PRM2, MEF2A, and STMN1/OP18 in vitro, suggesting its potential involvement in spermatogenesis.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA