

CaMKII alpha/CAMK2A Protein, Human (sf9, GST)

Cat. No.:	HY-P76761
Synonyms:	Calcium/calmodulin-dependent protein kinase type II subunit alpha; CAMKA
Species:	Human
Source:	Sf9 insect cells
Accession:	Q9UQM7-1 (M1-H478)
Gene ID:	815
Molecular Weight:	Approximately 80 kDa

PROPERTIES

Biological Activity	The specific activity was determined to be 160 nmol/min/mg using Autocamide-2 synthetic peptide (KKALRRQETVDAL-amide) as substrate.
Appearance	Solution.
Formulation	Supplied as a 0.2 µm filtered solution of 50 mM Tris, 100 mM NaCl, 0.5 mM PMSF, 0.5 mM Reduced Glutathione, pH 8.0
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	Please use rapid thawing with running water to thaw the protein.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

DESCRIPTION

Background

CaMKII alpha/CAMK2A protein, a calcium/calmodulin-dependent kinase, functions autonomously following Ca(2+)/calmodulin-binding and autophosphorylation, playing a crucial role in various cellular processes such as synaptic plasticity, neurotransmitter release, and long-term potentiation. As a member of the NMDAR signaling complex in excitatory synapses, it regulates NMDAR-dependent potentiation of the AMPAR, thereby influencing excitatory synaptic transmission. CaMKII alpha also contributes to dendritic spine development and regulates the migration of developing neurons. Beyond these functions, it phosphorylates the transcription factor FOXO3 to activate its transcriptional activity and targets the transcription factor ETS1 in response to calcium signaling, decreasing ETS1 affinity for DNA. In response to interferon-gamma (IFN-gamma) stimulation, it catalyzes the phosphorylation of STAT1, thereby stimulating the JAK-STAT signaling pathway. Additionally, in response to interferon-beta (IFN-beta) stimulation, CaMKII alpha stimulates the JAK-STAT signaling pathway and acts as a negative regulator of 2-arachidonoylglycerol (2-AG)-mediated synaptic signaling via modulation of DAGLA activity.

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

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