

Human CAMK1G / CLICK III / CaMKIgamma Protein (His & GST Tag)

Catalog Number: 13148-H20B



Sino Biological
Biological Solution Specialist

General Information

Gene Name Synonym:

CLICK3; CLICKIII; dJ272L16.1; VWS1

Protein Construction:

A DNA sequence encoding the human CAMK1G isoform 1 (Q96NX5-1) (Met 1-Met 476) was fused with the N-terminal polyhistidine-tagged GST tag at the N-terminus.

Source: Human

Expression Host: Baculovirus-Insect Cells

QC Testing

Purity: > 85 % as determined by SDS-PAGE

Bio Activity:

No Kinase Activity

Endotoxin:

< 1.0 EU per µg of the protein as determined by the LAL method

Stability:

Samples are stable for up to twelve months from date of receipt at -70 °C

Predicted N terminal: Met

Molecular Mass:

The recombinant human CAMK1G/GST chimera consists of 713 amino acids and has a calculated molecular mass of 81 kDa. It migrates as an approximately 75 kDa band in SDS-PAGE under reducing conditions.

Formulation:

Lyophilized from sterile 50mM Tris, 100mM NaCl, pH 8.0, 20% gly, 0.3mM DTT

Usage Guide

Storage:

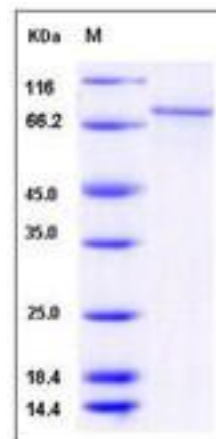
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

Calmodulin-Dependent Protein Kinase (CaM Kinase) is a kind of protein phosphorylate multiple downstream targets. Concentration of cytosolic calcium functions as a second messenger that mediates a wide range of cellular responses. Calcium binds to calcium binding proteins (calmodulin/CaM) and stimulates the activity of a variety of enzymes, including CaM kinases referred to as CaM-kinases (CaMKs), such as CaMKI, CaMKII, CaMKIV and CaMKK. Calmodulin-dependent protein kinase CL3/CaMKly is a membrane-anchored CaMK belonging to the CaM kinase family. Its C-terminal region is uniquely modified by two sequential lipidification steps: prenylation followed by a kinase-activity-regulated palmitoylation. These modifications are essential for CaMKly membrane anchoring and targeting into detergent-resistant lipid microdomains in the dendrites. It has been found that CaMKly critically contributed to BDNF-stimulated dendritic growth. Raft insertion of CaMKly specifically promoted dendritogenesis of cortical neurons by acting upstream of RacGEF STEF and Rac, both present in lipid rafts. Thus, CaMKly may represent a key element in the Ca²⁺-dependent and lipid-raft-delineated switch that turns on extrinsic activity-regulated dendrite formation in developing cortical neurons.

References

1. Davare MA, *et al.* (2009) Transient receptor potential canonical 5 channels activate Ca²⁺ / calmodulin kinase Igamma to promote axon formation in hippocampal neurons. *J Neurosci.* 29 (31): 9794-808.
2. Takemoto-Kimura S, *et al.* (2007) Regulation of dendritogenesis via a lipid-raft-associated Ca²⁺ / calmodulin - dependent protein kinase CLICK-III / CaMKIgamma. *Neuron.* 54 (5): 755-70.
3. Harrill JA, *et al.* (2010) Splice variant specific increase in Ca²⁺ / calmodulin-dependent protein kinase 1-gamma mRNA expression in response to acute pyrethroid exposure. *J Biochem Mol Toxicol.* 24 (3): 174-86.

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For US Customer: Fax: 267-657-0217 • Tel: 215-583-7898

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