Recombinant KCC4 protein (His tag)

Catalog Number	542745
Synonyms	CaMK IV; CaM kinase-GR
Species	Human
Expression System	E. coli
Accession	Q16566
Molecular Weight	Predictes a molecular mass of 36.24 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 37 kDa band.

Product Information

Sequence Region	33-337
Form	Lyophilized powder
Formulation	Lyophilized from sterile PBS, pH 7.4
Purity	>90%, by SDS-PAGE with Coomassie Brilliant Blue staining.
Endotoxin	Not tested.
Activity	Not tested.
Stability	Samples are stable for up to twelve months from date of receipt at -70℃
Protein Construction	DNA encoding 33-337 aa (Q16566) were fused with 6His tag.

Storage & Handling

Reconstitution	Reconstitute at 0.25 μg/μl in sterile water for short-term storage. Reconstitution with 50% glycerol solution is recommended for longer term storage (see Stability and Storage for more details). If a different concentration is needed for your purposes please adjust the reconstitution volume as required (please note: the ion concentration of the final solution will vary according to the volume used). Note: Centrifuge vial before opening. When reconstituting, gently pipet and wash down the sides of the vial to ensure full recovery of the protein into solution.
Storage	Store it under sterile conditions at -20℃ to -80℃. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.
Shipping	In general, recombinant proteins are provided as lyophilized powder which are shipped at ambient temperature. Bulk packages of recombinant proteins are provided as frozen liquid. They are shipped out with blue ice unless customers require otherwise.

Description

Description	This recombinant protein product features a 305-amino acid fragment (residues 33-337) of human Calcium/calmodulin-dependent protein kinase type IV (CaMK IV), encompassing the complete protein kinase domain. This carefully engineered fragment serves as an ideal tool for researchers investigating calcium/calmodulin-dependent signaling pathways, kinase activity assays, and transcriptional regulation mechanisms. Calcium/calmodulin-dependent protein kinase type IV (CaMK IV) is a crucial signaling molecule that operates within the calcium-triggered CaMKK-CaMK4 cascade. It primarily functions by phosphoryrating key transcription activators including CREB1, MEF2D, JUN, and RORA, thereby playing pivotal roles in immune response regulation, inflammation processes, and memory consolidation. In the immune system, CaMK IV regulates T-cell development and cytokine production, while in the nervous system it contributes to hippocampal memory consolidation and long-term potentiation through CREB1 phosphorylation. The enzyme demonstrates dual subcellular localization, functioning in both the cytoplasm and nucleus, with specific nuclear localization observed in hippocampal neurons where it regulates gene expression. CaMK IV also activates multiple MAP kinases and influences osteoclast and dendritic cell differentiation and survival, making it a multifunctional regulator of cellular signaling pathways.