# Recombinant KCC2B protein (His tag)

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| **Catalog Number** | 547274 |
| **Synonyms** | CaM kinase II subunit beta; CaMK-II subunit beta |
| **Species** | Human |
| **Expression System** | E. coli |
| **Accession** | Q13554 |
| **Molecular Weight** | Predictes a molecular mass of 35.81 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 36 kDa band. |

## Product Information

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| **Sequence Region** | 1-300 |
| **Form** | Lyophilized powder |
| **Formulation** | Lyophilized from sterile PBS, pH 7.4 |
| **Purity** | >88%, 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 1-300 aa (Q13554) were fused with 6His tag. |

## Storage & Handling

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| **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.<br>Bulk packages of recombinant proteins are provided as frozen liquid. They are shipped out with blue ice unless customers require otherwise. |

## Description

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| **Description** | Recombinant Human Calcium/calmodulin-dependent protein kinase type II subunit beta (CaMK-II subunit beta) fragment (amino acids 1-300), encompassing the complete protein kinase domain. This high-purity fragment serves as an essential tool for studying calcium/calmodulin-dependent signaling pathways, neuronal plasticity, and structural functions in dendritic spine formation.<br>Calcium/calmodulin-dependent protein kinase type II subunit beta (CAMK2B) is a multifunctional serine/threonine kinase that operates autonomously following $Ca^{2+}$/calmodulin-binding and autophosphorylation. In neuronal systems, it plays a critical structural role in actin cytoskeleton reorganization during synaptic plasticity, binding and bundling actin filaments independently of its kinase activity. This structural function is essential for proper targeting of CaMK2A and supports dendritic spine formation, synapse development, and maintenance of long-term potentiation (LTP) for hippocampus-dependent learning. The protein localizes to the cytoplasm, cytoskeleton, centrosome, and sarcoplasmic reticulum membrane, with specific distribution patterns in muscle tissues. Beyond its neuronal functions, CAMK2B regulates sarcoplasmic reticulum $Ca^{2+}$ transport in skeletal muscle and participates in JAK-STAT signaling through STAT1 phosphorylation. The 1-300 amino acid fragment provided contains the complete protein kinase domain (residues 14-272), enabling focused investigation of its catalytic and regulatory mechanisms. |