

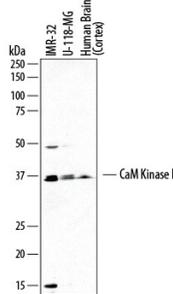
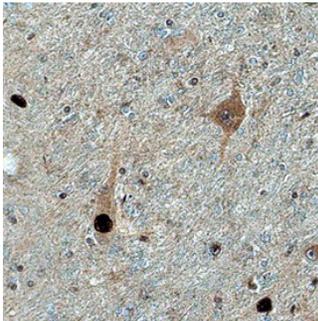
DESCRIPTION	
<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects recombinant human CaM Kinase Ia in direct ELISAs and Western blots. In direct ELISAs, less than 1% cross-reactivity with recombinant human CaMKIV is observed.
<b>Source</b>	Polyclonal Sheep IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human CaM Kinase Ia Ser176-Arg254 (Ala224Ser) Accession # Q14012
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
<b>Western Blot</b>	2 µg/mL	See Below
<b>Immunohistochemistry</b>	5-15 µg/mL	See Below

## DATA

Western Blot	Immunohistochemistry
 <p><b>Detection of Human CaM Kinase I by Western Blot.</b> Western blot shows lysates of IMR-32 human neuroblastoma cell line, U-118-MG human glioblastoma/astrocytoma cell line, and human brain (cortex) tissue. PVDF membrane was probed with 2 µg/mL of Sheep Anti-Human CaM Kinase I Antigen Affinity-purified Polyclonal Antibody (Catalog # AF7899) followed by HRP-conjugated Anti-Sheep IgG Secondary Antibody (Catalog # HAF016). A specific band was detected for CaM Kinase I at approximately 37 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.</p>	 <p><b>CaM Kinase Ia in Human Hypothalamus.</b> CaM Kinase I was detected in immersion fixed paraffin-embedded sections of human hypothalamus using Sheep Anti-Human CaM Kinase I Antigen Affinity-purified Polyclonal Antibody (Catalog # AF7899) at 1.7 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Sheep HRP-DAB Cell &amp; Tissue Staining Kit (brown; Catalog # CTS019) and counterstained with hematoxylin (blue). Specific staining was localized to cytoplasm and nuclei. View our protocol for <a href="#">Chromogenic IHC Staining of Paraffin-embedded Tissue Sections</a>.</p>

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Sterile PBS to a final concentration of 0.2 mg/mL.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

## BACKGROUND

CaMKI (Calcium/Calmodulin-dependent kinase I) is a 37-43 kDa monomeric and cytosolic member of the CaMK subfamily, Ser/Thr protein kinase family, protein kinase superfamily of molecules. It is found in multiple cell types, including adrenal cortical cells, neurons and macrophages/osteoclast precursors. CaMKI is associated with the cellular Ca<sup>2+</sup> signaling pathway. Upon entry into the cell, calcium levels are sensed by calmodulin. Upon Ca<sup>2+</sup> binding, calmodulin (and CaMK kinase) interacts with a Ser/Thr protein kinase termed CaMKIa. CaMKIa is of particular interest in neurons and cells of the zona glomerulosa. In neurons, CaMKIa activation results in the recruitment of AMPA-Rs and the promotion of axon growth (vs. dendrite outgrowth which is promoted by CaMKI $\beta$ ). In the adrenal gland, CaMKIa regulates CYP11B2 transcription, and thus the ability to synthesize aldosterone. Human CaMKI, the isoform used for immunization, is 370 amino acids (aa) in length (SwissProt #:Q14012). It contains one protein kinase domain (aa 20-276) followed by a calmodulin-binding region (aa 296-317) and an NES (aa 315-321). Over aa 178-257, human and mouse CaMKI are identical in amino acid sequence. There are three additional CaMKI isoforms (b, g, d), all the product of distinct genes. Nevertheless, over the same aa sequence, these three isoforms (b, g, d) share 80%, 81% and 97% aa sequence identity with CaMKI(a), respectively.