

# CaMKI- $\delta$ Antibody

✓ 100  $\mu$ l  
(10 western blots)

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This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

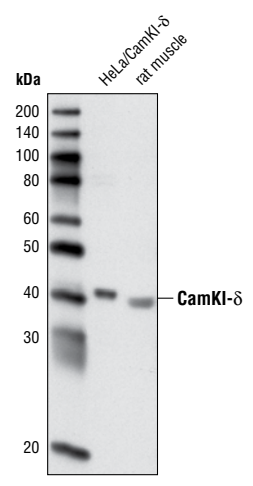
Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Endogenous	H, R, (M)	43 kDa	Rabbit**

**Background:** The Ca<sup>2+</sup>/calmodulin-dependent kinase (CaMK) family, which is activated in response to elevation of intracellular Ca<sup>2+</sup>, includes CaMKI, CaMKII, CaMKIV and CaMK-kinases (CaMKKs) (1,2). CaMKI is a downstream substrate of CaMKK and has 4 isoforms: CaMKI- $\alpha$ , CaMKI- $\beta$ , CaMKI- $\gamma$  and CaMKI- $\delta$ . CaMKI is present in most cell types and may be involved in cellular functions including transcription, cytoskeletal organization, axonal growth cone motility and long-term potentiation in neurons (3-6). CaMKII is also ubiquitously expressed in most cell types. While muscular CaMKII has been linked to activation of mitochondrial biogenesis in muscle hypertrophy response, neuronal CaMKII regulates important neuronal functions, including neurotransmitter synthesis, neurotransmitter release, modulation of ion channel activity, cellular transport, cell morphology and neurite extension, synaptic plasticity, learning and memory and gene expression (7). Like CaMKI, CaMKIV is also a substrate of CaMKKs and is primarily restricted to the nucleus of neurons. CaMKIV regulates gene transcription in neurons through phosphorylation of transcription factors such as CREB and is required for fear memory (8).

CaMKI- $\delta$  translocates to the nucleus upon intracellular Ca<sup>2+</sup> influx and is activated through phosphorylation of Thr180 by CaMKK (9).

**Specificity/Sensitivity:** CaMKI- $\delta$  Antibody detects endogenous levels of total CaMKI- $\delta$  protein. This antibody may detect other isoforms of CaMKI.

**Source/Purification:** Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to human CaMKI- $\delta$ . Antibodies are purified by peptide affinity chromatography.



Western blot analysis of extracts from HeLa cells, transfected with a construct overexpressing CaMKI- $\delta$ , and rat skeletal muscle using CaMKI- $\delta$  Antibody.

**Background References:**

- (1) Chin, E.R. (2004) *Proc. Nutr. Soc.* 63, 279–286.
- (2) Mizuno, K. and Giese, K.P. (2005) *J. Pharmacol. Sci.* 98, 191–197.
- (3) Wayman, G.A. et al. (2004) *J. Neurosci.* 24, 3786–3794.
- (4) Gardner, H.P. et al. (2000) *Genomics* 63, 279–288.
- (5) Verploegen, S. et al. (2005) *Blood* 106, 1076–1083.
- (6) Takemoto-Kimura, S. et al. (2003) *J. Biol. Chem.* 278, 18597–18605.
- (7) Yamauchi, T. (2005) *Biol. Pharm. Bull.* 28, 1342–1354.
- (8) Wei, F. et al. (2002) *Nat. Neurosci.* 5, 573–579.
- (9) Sakagami, H. et al. (2005) *Eur. J. Neurosci.* 22, 2697–2707.

Entrez-Gene ID #57118  
Swiss-Prot Acc. #Q8IU85

**Storage:** Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100  $\mu$ g/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

\*Species cross-reactivity is determined by western blot.

\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.

**Recommended Antibody Dilutions:**

Western blotting 1:1000

For application specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).

Please visit [www.cellsignal.com](http://www.cellsignal.com) for a complete listing of recommended companion products.

**IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.**