

CaMKI δ (C-15): sc-162628

BACKGROUND

The Ca²⁺/calmodulin-dependent protein kinases (CaMKs) comprise a structurally related subfamily of serine/threonine kinases. CaMKI δ (Calcium/calmodulin-dependent protein kinase type 1 δ), also known as CKLiK or CaM-K1, is a 385 amino acid protein that localizes to both the nucleus and the cytoplasm and contains one protein kinase domain. Expressed in a variety of tissues with higher expression in polymorphonuclear leukocytes, CaMKI δ functions to catalyze the ATP-dependent phosphorylation of target proteins and is thought to regulate calcium-mediated granulocyte function via a calcium-triggered signaling cascade. CaMKI δ is activated by CaM, which binds to and induces a conformational change in CaMKI δ , thereby allowing CaMKK α and CaMKK β to phosphorylate and, subsequently activate CaMKI δ . Nucleotide polymorphisms in the gene encoding CaMKI δ may increase susceptibility to type 2 diabetes. Two isoforms of CaMKI δ exist due to alternative splicing events.

REFERENCES

1. Verploegen, S., et al. 2000. Identification and characterization of CKLiK, a novel granulocyte Ca²⁺/calmodulin-dependent kinase. *Blood* 96: 3215-3223.
2. Hook, S.S., et al. 2001. Ca²⁺/CaM-dependent kinases: from activation to function. *Annu. Rev. Pharmacol. Toxicol.* 41: 471-505.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607957. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Ishikawa, Y., et al. 2003. Identification and characterization of novel components of a Ca²⁺/calmodulin-dependent protein kinase cascade in HeLa cells. *FEBS Lett.* 550: 57-63.
5. Verploegen, S., et al. 2005. Characterization of the role of CaMKI-like kinase (CKLiK) in human granulocyte function. *Blood* 106: 1076-1083.
6. Grarup, N., et al. 2008. Association testing of novel type 2 diabetes risk alleles in the JAZF1, Cdc123/CaMK1D, TSPAN8, THADA, ADAMTS-9, and NOTCH2 loci with Insulin release, Insulin sensitivity, and obesity in a population-based sample of 4,516 glucose-tolerant middle-aged Danes. *Diabetes* 57: 2534-2540.
7. Staiger, H., et al. 2008. Novel meta-analysis-derived type 2 diabetes risk loci do not determine prediabetic phenotypes. *PLoS ONE* 3: e3019.

CHROMOSOMAL LOCATION

Genetic locus: CAMK1D (human) mapping to 10p13; Camk1d (mouse) mapping to 2 A1.

SOURCE

CaMKI δ (C-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of CaMKI δ of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-162628 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CaMKI δ (C-15) is recommended for detection of CaMKI δ of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with CaMKI β or CaMKI γ .

CaMKI δ (C-15) is also recommended for detection of CaMKI δ in additional species, including equine and bovine.

Suitable for use as control antibody for CaMKI δ siRNA (h): sc-90716, CaMKI δ siRNA (m): sc-141991, CaMKI δ shRNA Plasmid (h): sc-90716-SH, CaMKI δ shRNA Plasmid (m): sc-141991-SH, CaMKI δ shRNA (h) Lentiviral Particles: sc-90716-V and CaMKI δ shRNA (m) Lentiviral Particles: sc-141991-V.

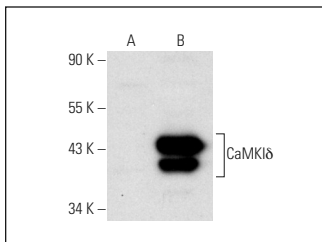
Molecular Weight of CaMKI δ : 40 kDa.

Positive Controls: Daudi cell lysate: sc-2415 or CaMKI δ (h): 293T Lysate: sc-159742.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



CaMKI δ (C-15): sc-162628. Western blot analysis of CaMKI δ expression in non-transfected: sc-117752 (A) and human CaMKI δ transfected: sc-159742 (B) 293T whole cell lysates.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.