SANTA CRUZ BIOTECHNOLOGY, INC.

CaMKIδ (h3): 293T Lysate: sc-115424

BACKGROUND

The Ca^{2+}/calmodulin-dependent protein kinases (CaMKs) comprise a structurally related subfamily of serine/threonine kinases. CaMKIδ (Calcium/calmodulin-dependent protein kinase type 1δ), also known as CKLiK or CaMK1, 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, CaMKIδ 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. CaMKIδ is activated by CaM, which binds to and induces a conformational change in CaMKIδ, thereby allowing CaMKKα and CaMKKβ to phosphorylate and, subsequently activate CaMKIδ. Nucleotide polymorphisms in the gene encoding CaMKIδ may increase susceptibility to type 2 diabetes. Two isoforms of CaMK1δ exist due to alternative splicing events.

REFERENCES

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2. Hook, S.S., et al. 2001. Ca^{2+}/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 Ca^{2+}/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, ADAMTS9, 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.
8. Zeggini, E., et al. 2008. Meta-analysis of genome-wide association data and large-scale replication identifies additional susceptibility loci for type 2 diabetes. Nat. Genet. 40: 638-645.

CHROMOSOMAL LOCATION

Genetic locus: CAMK1D (human) mapping to 10p13.

PRODUCT

CaMKIδ (h3): 293T Lysate represents a lysate of human CaMKIδ transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

RESEARCH USE

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

APPLICATIONS

CaMKIδ (h3): 293T Lysate is suitable as a Western Blotting positive control for human reactive CaMKIδ antibodies. Recommended use: 10-20 µl per lane.

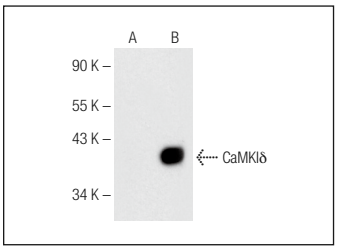
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

CaMKIδ (C-9): sc-374028 is recommended as a positive control antibody for Western Blot analysis of enhanced human CaMKIδ expression in CaMKIδ transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



CaMKIδ (C-9): sc-374028. Western blot analysis of CaMKIδ expression in non-transfected: sc-117752 (**A**) and human CaMKIδ transfected: sc-115424 (**B**) 293T whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.