SANTA CRUZ BIOTECHNOLOGY, INC.

CDKAL1 (E-9): sc-393447

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Cell cycle progression is controlled, in part, by a family of cyclin dependent kinases (Cdks) that work to phosphorylate key substrates involved in each phase of cell cycle progression. Cdks are the catalytic subunits of serine/threonine protein kinases, a large family of proteins that act as regulators of the eukaryotic cell cycle. CDKAL1 (Cdk5 regulatory subunit associated protein 1-like 1) is a 579 amino acid single-pass membrane protein that contains one TRAM domain and is similar to Cdk5 regulatory subunit associated proteins (CDK5RAPs). Expressed in pancreas, brain and skeletal muscle, CDKAL1 uses iron as a cofactor and is involved in glucose-stimulated Insulin secretion. Defects in the gene encoding CDKAL1 impair Insulin secretion and are associated with the development of type 2 diabetes. Multiple isoforms of CDKAL1 exist due to alternative splicing events.

CHROMOSOMAL LOCATION

Genetic locus: CDKAL1 (human) mapping to 6p22.3; Cdkal1 (mouse) mapping to 13 A3.1.

SOURCE

CDKAL1 (E-9) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of CDKAL1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CDKAL1 (E-9) is available conjugated to agarose (sc-393447 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-393447 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393447 PE), fluorescein (sc-393447 FITC), Alexa Fluor® 488 (sc-393447 AF488), Alexa Fluor® 546 (sc-393447 AF546), Alexa Fluor® 594 (sc-393447 AF594) or Alexa Fluor® 647 (sc-393447 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393447 AF680) or Alexa Fluor® 790 (sc-393447 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

CDKAL1 (E-9) is recommended for detection of CDKAL1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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).

Suitable for use as control antibody for CDKAL1 siRNA (h): sc-95524, CDKAL1 siRNA (m): sc-142228, CDKAL1 shRNA Plasmid (h): sc-95524-SH, CDKAL1 shRNA Plasmid (m): sc-142228-SH, CDKAL1 shRNA (h) Lentiviral Particles: sc-95524-V and CDKAL1 shRNA (m) Lentiviral Particles: sc-142228-V.

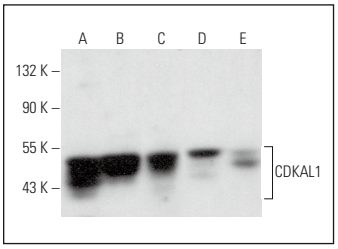
Molecular Weight of CDKAL1: 65 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, Hep G2 cell lysate: sc-2227 or human skeletal muscle extract: sc-363776.

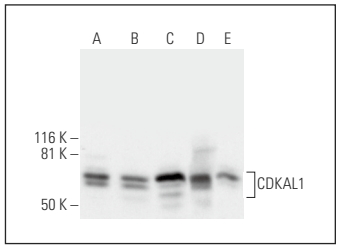
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGλ BP-HRP: sc-516132 or m-IgGλ BP-HRP (Cruz Marker): sc-516132-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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGλ BP-FITC: sc-516185 or m-IgGλ BP-PE: sc-516186 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



CDKAL1 (E-9): sc-393447. Western blot analysis of CDKAL1 expression in Jurkat (**A**), HEL 92.1.7 (**B**), HL-60 (**C**), KNRK (**D**) and NIH/3T3 (**E**) whole cell lysates.



CDKAL1 (E-9): sc-393447. Western blot analysis of CDKAL1 expression in Hep G2 (**A**), U-2 OS (**B**) and Jurkat (**C**) whole cell lysates and human skeletal muscle (**D**) and human pancreas (**E**) tissue extracts.

SELECT PRODUCT CITATIONS

1. Narendran, A., et al. 2021. Silencing of the tRNA modification enzyme CDKAL1 effects functional Insulin synthesis in NIT-1 cells: $tRNA^{Lys3}$ lacking ms^2- ($ms^2t^6A_{37}$) is unable to establish sufficient anticodon:codon interactions to decode the wobble codon AAG. Front. Mol. Biosci. 7: 584228.
2. Huang, R., et al. 2023. CDKAL1 drives the maintenance of cancer stem-like cells by assembling the eIF4F translation initiation complex. Adv. Sci. 10: e2206542.

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.

PROTOCOLS

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