SANTA CRUZ BIOTECHNOLOGY, INC.

PKLR (G-11): sc-133224

BACKGROUND

In mammals, four different isoenzymes exist for pyruvate kinase. Based on their tissue distribution, the isoenzymes are designated L-type (for predominant expression in the liver), R-type (for predominant expression in red blood cells), M1-type (for predominant expression in muscle, brain and heart) and M2-type (for predominant expression in fetal tissues). Pyruvate kinases are responsible for catalyzing the final step in glycolysis: the conversion of phosphoenolpyruvate to pyruvate with the coinciding generation of ATP. The PKLR (pyruvate kinase, liver and RBC) gene encodes the L- and R-type isoenzymes through alternative splicing events under the control of different promoters. The R-type isoform, also known as RPK (R-type pyruvate kinase) exists as a tetramer and when functioning improperly, can result in chronic/hereditary nonspherocytic hemolytic anemia (CNSHA/HNSHA) or pyruvate kinase hyperactivity (also called high red cell ATP syndrome). The L-type isoform, alternatively known as PKL (pyruvate kinase L-type), also exists as a tetramer and is upregulated by glucose with implications in maturity-onset diabetes of the young (MODY).

REFERENCES

1. Tani, K., et al. 1987. Human liver type pyruvate kinase: cDNA cloning and chromosomal assignment. Biochem. Biophys. Res. Commun. 143: 431-438.
2. Tani, K., et al. 1988. Two homozygous cases of erythrocyte pyruvate kinase (PK) deficiency in Japan: PK Sendai and PK Shinshu. Am. J. Hematol. 28: 186-190.
3. Nordström, L. and Lerner, S.A. 1991. Single daily dose therapy with amino-glycosides. J. Hosp. Infect. Suppl. A: 117-129.
4. Wang, H., et al. 2002. Liver pyruvate kinase polymorphisms are associated with type 2 diabetes in northern European Caucasians. Diabetes 51: 2861-2865.
5. van Wijk, R., et al. 2003. Disruption of a novel regulatory element in the erythroid-specific promoter of the human PKLR gene causes severe pyruvate kinase deficiency. Blood 101: 1596-1602.

CHROMOSOMAL LOCATION

Genetic locus: PKLR (human) mapping to 1q22; Pklr (mouse) mapping to 3 F1.

SOURCE

PKLR (G-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2-39 within an internal region of PKLR of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-133224 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

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

APPLICATIONS

PKLR (G-11) is recommended for detection of PKLR 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 PKLR siRNA (h): sc-62818, PKLR siRNA (m): sc-62819, PKLR shRNA Plasmid (h): sc-62818-SH, PKLR shRNA Plasmid (m): sc-62819-SH, PKLR shRNA (h) Lentiviral Particles: sc-62818-V and PKLR shRNA (m) Lentiviral Particles: sc-62819-V.

Molecular Weight of PKLR R-type monomer: 63 kDa.

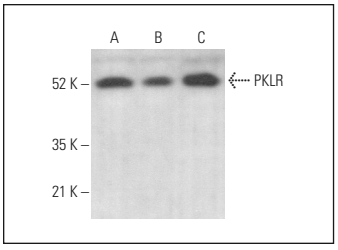
Molecular Weight of PKLR L-type monomer: 59 kDa.

Positive Controls: PKLR (h): 293T Lysate: sc-114132, HeLa whole cell lysate: sc-2200 or HEK293 whole cell lysate: sc-45136.

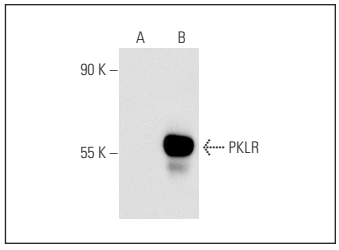
RECOMMENDED SUPPORT REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



PKLR (G-11): sc-133224. Western blot analysis of PKLR expression in HeLa (**A**), HEK293 (**B**) and c4 (**C**) whole cell lysates.



PKLR (G-11): sc-133224. Western blot analysis of PKLR expression in non-transfected: sc-117752 (**A**) and human PKLR transfected: sc-114132 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Cliff, T.S., et al. 2017. MYC controls human pluripotent stem cell fate decisions through regulation of metabolic flux. Cell Stem Cell 21: 502-516.e9.

STORAGE

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