SANTA CRUZ BIOTECHNOLOGY, INC.

PKLR (h): 293T Lysate: sc-114132

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 red blood cells) 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 aminoglycosides. J. Hosp. Infect. 18: 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.
6. Park-Hah, J.O., et al. 2005. A novel homozygous mutation of PKLR gene in a pyruvate-kinase-deficient Korean family. Acta Haematol. 113: 208-211.
7. Diez, A., et al. 2005. Life-threatening nonspherocytic hemolytic anemia in a patient with a null mutation in the PKLR gene and no compensatory PKM gene expression. Blood 106: 1851-1856.
8. de Vooght, K.M., et al. 2005. Pyruvate kinase regulatory element 1 (PKR-RE1) mediates hexokinase gene expression in K-562 cells. Blood Cells Mol. Dis. 34: 186-190.
9. Zanella, A., et al. 2007. Pyruvate kinase deficiency: the genotype-phenotype association. Blood Rev. 21: 217-231.

CHROMOSOMAL LOCATION

Genetic locus: PKLR (human) mapping to 1q22.

PRODUCT

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

APPLICATIONS

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

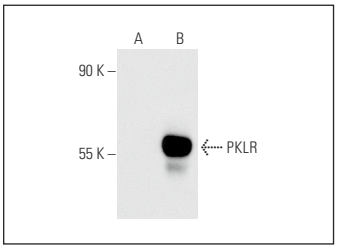
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-tranfected 293T cells.

PKLR (G-11): sc-133224 is recommended as a positive control antibody for Western Blot analysis of enhanced human PKLR expression in PKLR transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

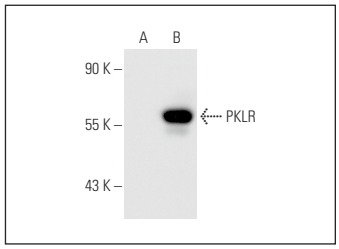
RECOMMENDED SUPPORT REAGENTS

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



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.



PKLR (E-2): sc-133222. Western blot analysis of PKLR expression in non-transfected: sc-117752 (**A**) and human PKLR transfected: sc-114132 (**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.

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.