SANTA CRUZ BIOTECHNOLOGY, INC.

PKR (FJ-6): sc-100378

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

An interferon-inducible, RNA-dependent protein serine/threonine kinase (PKR) has been described. PKR in earlier literature is variously known as DAI, dsJ, PI kinase, p65, p67 or TIK for the mouse kinase; and p68 or p69 for the human kinase. The PKR kinase substrate is the α subunit of protein synthesis initiation factor eIF-2. Phosphorylation of eIF-2α on serine-51 results in inhibition of translation. Molecular cDNA clones have been isolated from both human and mouse cells. The serine/threonine kinase catalytic domains map to the carboxy-terminal half of the protein while the RNA-binding domains are located in the amino-terminal region. Three kinds of regulation of PKR enzymatic activity have been described. These include transcriptional regulation in response to interferon, an autoregulatory mechanism controlling PKR expression at the level of translation and post-translational regulation by RNA mediated autophosphorylation.

REFERENCES

1. Hershey, J.W.B. 1989. Protein phosphorylation controls translation rates. J. Biol. Chem. 264: 20823-20826.
2. Meurs, E., et al. 1990. Molecular cloning and characterization of the human double-stranded RNA-activated protein kinase induced by interferon. Cell 62: 379-390.

CHROMOSOMAL LOCATION

Genetic locus: EIF2AK2 (human) mapping to 2p22.2.

SOURCE

PKR (FJ-6) is a mouse monoclonal antibody raised against recombinant PKR of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PKR (FJ-6) is recommended for detection of PKR of human origin by Western Blotting (starting dilution 1:200, 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), immunohistochemistry (including paraffin-embedded sections) (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 PKR siRNA (h): sc-36263, PKR shRNA Plasmid (h): sc-36263-SH and PKR shRNA (h) Lentiviral Particles: sc-36263-V.

Molecular Weight of PKR: 68 kDa.

Positive Controls: BJAB whole cell lysate: sc-2207, HeLa whole cell lysate: sc-2200 or A-431 whole cell lysate: sc-2201.

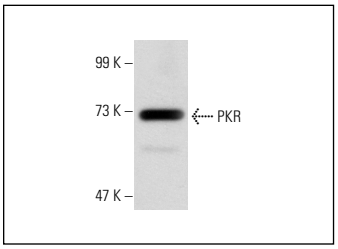
RESEARCH USE

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

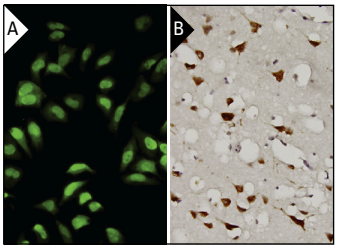
STORAGE

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

DATA



PKR (FJ-6): sc-100378. Western blot analysis of PKR expression in A-431 whole cell lysate.



PKR (FJ-6): sc-100378. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human cerebral cortex tissue showing nuclear localization (**B**).

SELECT PRODUCT CITATIONS

1. Saloura, V., et al. 2010. Evaluation of an attenuated vesicular stomatitis virus vector expressing interferon-β for use in malignant pleural mesothelioma: heterogeneity in interferon responsiveness defines potential efficacy. Hum. Gene Ther. 21: 51-64.
2. Vivarini, A.C., et al. 2011. Human cutaneous leishmaniasis: interferon-dependent expression of double-stranded RNA-dependent protein kinase (PKR) via TLR2. FASEB J. 25: 4162-4173.
3. Liu, L., et al. 2012. Influenza A Virus induces interleukin-27 through cyclooxygenase-2 and protein kinase A signaling. J. Biol. Chem. 287: 11899-11910.
4. Okumura, F., et al. 2013. Activation of double-stranded RNA-activated protein kinase (PKR) by interferon-stimulated gene 15 (ISG15) modification down-regulates protein translation. J. Biol. Chem. 288: 2839-2847.
5. Bai, L., et al. 2015. Hepatitis B virus hijacks CTHRC1 to evade host immunity and maintain replication. J. Mol. Cell Biol. 7: 543-556.
6. Chen, J., et al. 2017. MMP-9 facilitates hepatitis B virus replication through binding with IFNAR1 to repress IFN/JAK/Stat signaling. J. Virol. 91 pii: e01824-16.
7. Xu, G., et al. 2019. Inducible LGALS3BP/90K activates antiviral innate immune responses by targeting TRAF6 and TRAF3 complex. PLoS Pathog. 15: e1008002.
8. Toribio, R., et al. 2019. Naturally occurring and engineered alphaviruses sensitive to PKR show restricted translation in mammalian cells, an increased sensitivity to interferon and a marked oncotropism. J. Virol. 94 pii: e01630-19.

PROTOCOLS

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