SANTA CRUZ BIOTECHNOLOGY, INC.

PKR siRNA (O. cuniculus): sc-270620

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 a subunit of protein synthesis initiation factor eIF-2. Phosphorylation of eIF-2a 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.
3. Icely, P.L., et al. 1991. TIK, a novel serine/threonine kinase, is recognized by antibodies directed against phosphotyrosine. J. Biol. Chem. 266: 16073-16077.
4. Thomis, D.C., et al. 1992. Mechanism of interferon action: cDNA structure expression, and regulation of the interferon-induced, RNA-dependent P1/eIF-2 α protein kinase from human cells. Virology 188: 33-46.
5. McCormack, S.J., et al. 1992. Mechanism of interferon action: identification of a RNA binding domain within the N-terminal region of the human RNA-dependent P1/eIF-2 α protein kinase. Virology 188: 47-56.
6. Baier, L.J., et al. 1993. The mouse antiphosphotyrosine immunoreactive kinase, TIK, is indistinguishable from the double-stranded RNA-dependent, interferon-induced protein kinase, PKR. Nucleic Acids Res. 21: 4830-4835.

CHROMOSOMAL LOCATION

Genetic locus: EIF2AK2 *(O. cuniculus)* mapping to 2.

PRODUCT

PKR siRNA (O. cuniculus) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PKR shRNA Plasmid (O. cuniculus): sc-270620-SH and PKR shRNA (O. cuniculus) Lentiviral Particles: sc-270620-V as alternate gene silencing products.

For independent verification of PKR (O. cuniculus) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270620A, sc-270620B and sc-270620C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PKR siRNA (O. cuniculus) is recommended for the inhibition of PKR expression in *O. cuniculus* cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor gene expression knockdown using RT-PCR Primer: PKR (O. cuniculus)-PR: sc-270620-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.