SANTA CRUZ BIOTECHNOLOGY, INC.

PERK (C-16): sc-9481

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. 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. PERK is a type I transmembrane protein located in the endoplasmic reticulum (ER) that contains a kinase domain similar to the kinase domain of PKR. PERK is activated in response to ER stress and phosphorylates eIF-2α, thus inhibiting the translation of mRNA.

CHROMOSOMAL LOCATION

Genetic locus: EIF2AK3 (human) mapping to 2p11.2.

SOURCE

PERK (C-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of PERK of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-9481 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

PERK (C-16) is recommended for detection of PERK 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

PERK (C-16) is also recommended for detection of PERK in additional species, including canine.

Suitable for use as control antibody for PERK siRNA (h): sc-36213, PERK shRNA Plasmid (h): sc-36213-SH and PERK shRNA (h) Lentiviral Particles: sc-36213-V.

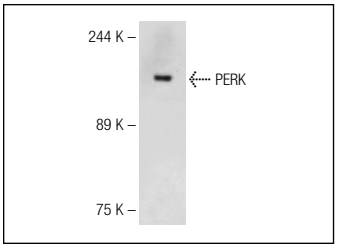
Molecular Weight of PERK: 125 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HeLa + nocodazole cell lysate: sc-2274 or Hep G2 cell lysate: sc-2227.

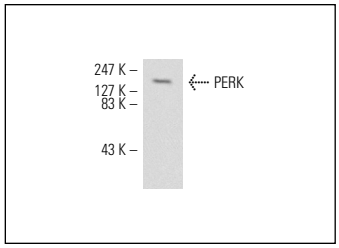
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



PERK (C-16): sc-9481. Western blot analysis of PERK expression in nocodazole treated HeLa whole cell lysate.



PERK (C-16): sc-9481. Western blot analysis of PERK expression in Hep G2 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Iwawaki, T., et al. 2001. Translational control by the ER transmembrane kinase/ribonuclease IRE1 under ER stress. Nat. Cell Biol. 3: 158-164.
2. Kubota, K., et al. 2006. Suppressive effects of 4-phenylbutyrate on the aggregation of Pael receptors and endoplasmic reticulum stress. J. Neurochem. 97: 1259-1268.
3. Lithanatudom, P., et al. 2010. A mechanism of ineffective erythropoiesis in β-thalassemia/Hb E disease. Haematologica 95: 716-723.
4. Yu, Y., et al. 2011. Hepatitis B virus induces a novel inflammation network involving three inflammatory factors, IL-29, IL-8, and cyclooxygenase-2. J. Immunol. 187: 4844-4860.
5. Lenna, S., et al. 2013. HLA-B35 and dsRNA induce endothelin-1 via activation of ATF4 in human microvascular endothelial cells. PLoS ONE 8: e56123.

RESEARCH USE

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