SANTA CRUZ BIOTECHNOLOGY, INC.

# PERK (H-300): sc-13073

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 $\alpha$ subunit of protein synthesis initiation factor eIF-2. Phosphorylation of eIF-2$\alpha$ 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-2$\alpha$, thus inhibiting the translation of mRNA.

## CHROMOSOMAL LOCATION

Genetic locus: EIF2AK3 (human) mapping to 2p11.2; Eif2ak3 (mouse) mapping to 6 C1.

## SOURCE

PERK (H-300) is a rabbit polyclonal antibody raised against amino acids 21-320 mapping near the N-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.

## APPLICATIONS

PERK (H-300) is recommended for detection of PERK of mouse, rat and 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 PERK siRNA (h): sc-36213, PERK siRNA (m): sc-36214, PERK shRNA Plasmid (h): sc-36213-SH, PERK shRNA Plasmid (m): sc-36214-SH, PERK shRNA (h) Lentiviral Particles: sc-36213-V and PERK shRNA (m) Lentiviral Particles: sc-36214-V.

Molecular Weight of PERK: 125 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, NIH/3T3 whole cell lysate: sc-2210 or HeLa + nocodazole cell lysate: sc-2274.

## STORAGE

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

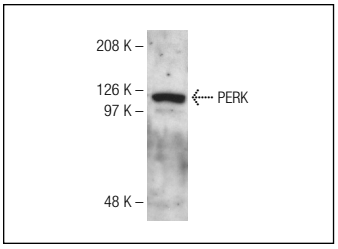
## PROTOCOLS

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

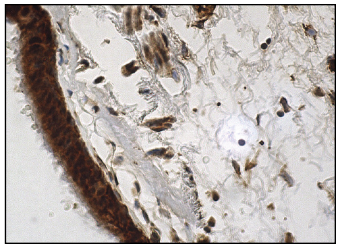
## RESEARCH USE

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

## DATA




PERK (H-300): sc-13073. Western blot analysis of PERK expression in NIH/3T3 whole cell lysate.



PERK (H-300): sc-13073. Immunoperoxidase staining of formalin fixed, paraffin-embedded human bronchus tissue showing cytoplasmic and nuclear staining of respiratory epithelial cells.

## SELECT PRODUCT CITATIONS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3. Ni, L., et al. 2011. β-AR blockers suppresses ER stress in cardiac hypertrophy and heart failure. PLoS ONE 6: e27294.
4. Higa, A., et al. 2011. Role of pro-oncogenic protein disulfide isomerase (PDI) family member anterior gradient 2 (AGR2) in the control of endoplasmic reticulum homeostasis. J. Biol. Chem. 286: 44855-44868.
5. Ling, Y., et al. 2011. Baicalein potently suppresses angiogenesis induced by vascular endothelial growth factor through the p53/Rb signaling pathway leading to $G_1$/S cell cycle arrest. Exp. Biol. Med. 236: 851-858.
6. Miranda, S., et al. 2012. Beneficial effects of fenofibrate in retinal pigment epithelium by the modulation of stress and survival signaling under diabetic conditions. J. Cell. Physiol. 227: 2352-2362.
7. Liu, Z.C., et al. 2012. Bip enhanced the association of GSK-3β with tau during ER stress both *in vivo* and *in vitro*. J. Alzheimers Dis. 29: 727-740.
8. Liu, X.A., et al. 2012. Expression of the hyperphosphorylated tau attenuates ER stress-induced apoptosis with upregulation of unfolded protein response. Apoptosis 17: 1039-1049.
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