SANTA CRUZ BIOTECHNOLOGY, INC.

PERK (B-5): sc-377400

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; Eif2ak3 (mouse) mapping to 6 C1.

SOURCE

PERK (B-5) is a mouse monoclonal antibody raised against amino acids 21-320 mapping near the N-terminus of PERK of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PERK (B-5) is available conjugated to agarose (sc-377400 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-377400 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377400 PE), fluorescein (sc-377400 FITC), Alexa Fluor® 488 (sc-377400 AF488), Alexa Fluor® 546 (sc-377400 AF546), Alexa Fluor® 594 (sc-377400 AF594) or Alexa Fluor® 647 (sc-377400 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377400 AF680) or Alexa Fluor® 790 (sc-377400 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

PERK (B-5) is recommended for detection of PERK of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 siRNA (r): sc-60074, PERK shRNA Plasmid (h): sc-36213-SH, PERK shRNA Plasmid (m): sc-36214-SH, PERK shRNA Plasmid (r): sc-60074-SH, PERK shRNA (h) Lentiviral Particles: sc-36213-V, PERK shRNA (m) Lentiviral Particles: sc-36214-V and PERK shRNA (r) Lentiviral Particles: sc-60074-V.

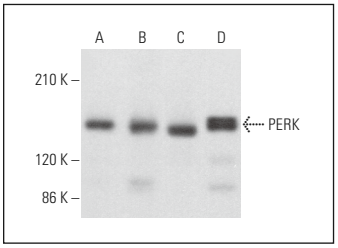
Molecular Weight of PERK: 125 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, K-562 whole cell lysate: sc-2203 or A549 cell lysate: sc-2413.

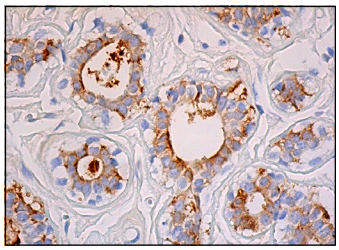
STORAGE

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

DATA



PERK (B-5): sc-377400. Western blot analysis of PERK expression in MCF7 (**A**), A549 (**B**), K-562 (**C**) and 3T3-L1 (**D**) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



PERK (B-5): sc-377400. Immunoperoxidase staining of formalin fixed, paraffin-embedded human breast tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Romero, M.M., et al. 2012. Clinical isolates of *Mycobacterium tuberculosis* differ in their ability to induce respiratory burst and apoptosis in neutrophils as a possible mechanism of immune escape. Clin. Dev. Immunol. 2012: 152546.
2. Liu, L.Q., et al. 2014. The resveratrol attenuates ethanol-induced hepatocyte apoptosis via inhibiting ER-related caspase-12 activation and PDE activity *in vitro*. Alcohol. Clin. Exp. Res. 38: 683-693.
3. Ma, P., et al. 2015. Baicalin alleviates diabetes-associated cognitive deficits via modulation of mitogen-activated protein kinase signaling, brain-derived neurotrophic factor and apoptosis. Mol. Med. Rep. 12: 6377-6383.
4. Zhou, X., et al. 2016. Propofol decreases endoplasmic reticulum stress-mediated apoptosis in retinal pigment epithelial cells. PLoS ONE 11: e0157590.
5. Wu, Z., et al. 2017. Silencing of both ATF4 and PERK inhibits cell cycle progression and promotes the apoptosis of differentiating chondrocytes. Int. J. Mol. Med. 40: 101-111.
6. Shim, S.M., et al. 2018. The endoplasmic reticulum-residing chaperone BiP is short-lived and metabolized through N-terminal arginylation. Sci. Signal. 11: eaan0630.
7. Trotta, M.C., et al. 2019. The activation of retinal HCA2 receptors by systemic β-hydroxybutyrate inhibits diabetic retinal damage through reduction of endoplasmic reticulum stress and the NLRP3 inflammasome. PLoS ONE 14: e0211005.
8. Bak, D.H., et al. 2020. Protective effects of human umbilical cord blood-derived mesenchymal stem cells against dexamethasone-induced apoptotic cell death in hair follicles. Int. J. Mol. Med. 45: 556-568.

RESEARCH USE

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

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