SANTA CRUZ BIOTECHNOLOGY, INC.

PARP-1 (194C1439): sc-56196

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Poly(ADP-ribose) polymerase 1 (PARP1) is a nuclear enzyme that plays a key role in DNA repair, chromatin remodeling, and cell survival. Upon detecting DNA strand breaks, PARP1 rapidly binds to damaged sites and catalyzes the transfer of ADP-ribose units from NAD^+ to target proteins, a process known as PARylation, which facilitates the recruitment of DNA repair factors. During apoptosis, PARP1 is specifically cleaved by caspase-3 and caspase-7 at a conserved site, producing an 89 kDa C-terminal fragment containing the catalytic domain and a 24 kDa N-terminal fragment containing the DNA-binding domain. This cleavage inactivates PARP1, preventing it from consuming cellular NAD^+ and ATP during irreversible cell damage. Studying cleaved PARP1 is important because its presence serves as a hallmark of apoptosis, making it a widely used biomarker in cancer research, drug screening, and studies of neurodegeneration and immune responses. Detection of cleaved PARP1 can provide a deeper understanding into the efficacy of pro-apoptotic therapies and help distinguish apoptotic from necrotic or viable cells.

CHROMOSOMAL LOCATION

Genetic locus: PARP1 (human) mapping to 1q42.12; Parp1 (mouse) mapping to 1 H4.

SOURCE

PARP-1 (194C1439) is a mouse monoclonal antibody raised against a synthetic peptide with epitope mapping near residues 214 and 215 cleavage site of PARP-1 of human origin.

PRODUCT

Each vial contains 50 µg IgG_{2b} in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PARP-1 (194C1439) is recommended for detection of cleavad product of PARP-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for PARP-1 siRNA (h): sc-29437, PARP-1 siRNA (m): sc-29438, PARP-1 shRNA Plasmid (h): sc-29437-SH, PARP-1 shRNA Plasmid (m): sc-29438-SH, PARP-1 shRNA (h) Lentiviral Particles: sc-29437-V and PARP-1 shRNA (m) Lentiviral Particles: sc-29438-V.

Molecular Weight of full-length PARP-1: 116 kDa.

Molecular Weight of PARP-1 C-terminal cleavage product: 89 kDa.

Molecular Weight of PARP-1 N-terminal cleavage product: 24 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409, HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

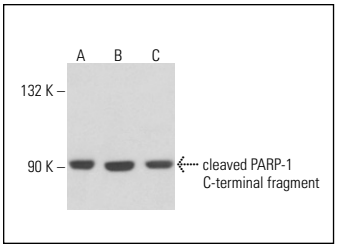
STORAGE

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

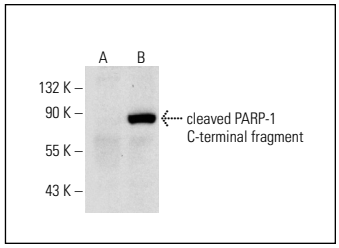
RESEARCH USE

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

DATA



PARP-1 (194C1439): sc-56196. Western blot analysis of PARP-1 expression in IMR-32 (**A**), Jurkat (**B**) and HeLa (**C**) whole cell lysates.



PARP-1 (194C1439): sc-56196. Western blot analysis of PARP-1 expression in untreated (**A**) and Etoposide (sc-3512) treated (**B**) Jurkat whole cell lysates. Note cleaved PARP-1 expression in lane **B**.

SELECT PRODUCT CITATIONS

1. Tang, L., et al. 2006. Potent activation of mitochondria-mediated apoptosis and arrest in S and M phases of cancer cells by a broccoli sprout extract. Mol. Cancer Ther. 5: 935-944.
2. Meynier, S., et al. 2015. Role of PAR-4 in ovarian cancer. Oncotarget 6: 22641-22652.
3. Zhou, Y., et al. 2017. Pifithrin-µ is efficacious against non-small cell lung cancer via inhibition of heat shock protein 70. Oncol. Rep. 37: 313-322.
4. Chen, X., et al. 2018. Mitochondrial pathway-mediated apoptosis is associated with erlotinib-induced cytotoxicity in hepatic cells. Oncol. Lett. 15: 783-788.
5. Liu, Y.T., et al. 2019. Lotus seedpod extracts reduced lipid accumulation and lipotoxicity in hepatocytes. Nutrients 11: 2895.
6. Lv, L., et al. 2020. Hispidulin exhibits potent anticancer activity *in vitro* and *in vivo* through activating ER stress in non-small-cell lung cancer cells. Oncol. Rep. 43: 1995-2003.
7. Manne, R.K., et al. 2021. FBXL20 promotes breast cancer malignancy by inhibiting apoptosis through degradation of PUMA and BAX. J. Biol. Chem. 297: 101253.
8. Zhou, L., et al. 2022. Farrerol alleviates myocardial ischemia/reperfusion injury by targeting macrophages and NLRP3. Front. Pharmacol. 13: 879232.
9. Sossa-Rojas, H., et al. 2023. Preclinical evaluation of oncolytic potential human rotavirus Wt 1-5 in gastric adenocarcinoma. PLoS ONE 18: e0285543.
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PROTOCOLS

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