SANTA CRUZ BIOTECHNOLOGY, INC.

# PARP-1 (5A5): sc-56197

## BACKGROUND

Poly(ADP-ribose) polymerase-1 (PARP-1), also designated PARP, is a nuclear DNA-binding zinc finger protein that influences DNA repair, DNA replication, modulation of chromatin structure and apoptosis. In response to genotoxic stress, PARP-1 catalyzes the transfer of ADP-ribose units from $NAD^+$ to a number of acceptor molecules including chromatin. PARP-1 recognizes DNA strand interruptions and can complex with RNA and negatively regulate transcription. Actinomycin D- and etoposide-dependent induction of caspases mediates cleavage of PARP-1 into a p89 fragment that traverses into the cytoplasm. Apoptosis-inducing factor (AIF) translocation from the mitochondria to the nucleus is PARP-1-dependent and is necessary for PARP-1-dependent cell death. PARP-1 deficiencies lead to chromosomal instability due to higher frequencies of chromosome fusions and aneuploidy, suggesting that poly(ADP-ribosyl)ation contributes to the efficient maintenance of genome integrity.

## REFERENCES


1. Kaufmann, S.H., et al. 1993. Specific proteolytic cleavage of poly(ADP-ribose) polymerase: an early marker of chemotherapy-induced apoptosis. Cancer Res. 53: 3976-3985.
2. Lazebnik, Y.A., et al. 1994. Cleavage of poly(ADP-ribose) polymerase by a proteinase with properties like ICE. Nature 371: 346-347.


## CHROMOSOMAL LOCATION

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

## SOURCE

PARP-1 (5A5) is a mouse monoclonal antibody raised against a fragment PARP-1 of human origin.

## PRODUCT

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

## APPLICATIONS

PARP-1 (5A5) is recommended for detection of PARP-1 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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.

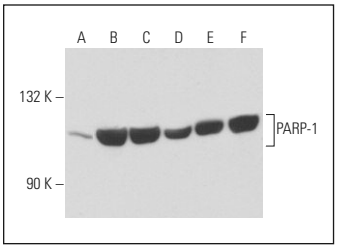
Molecular Weight of PARP-1 N-terminal cleavage product: 24 kDa.

Positive Controls: Raji whole cell lysate: sc-364236, HeLa nuclear extract: sc-2120 or Jurkat nuclear extract: sc-2132.

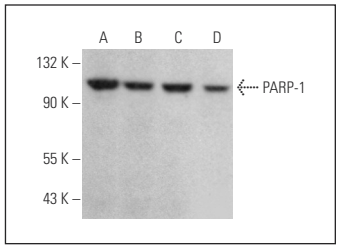
## STORAGE

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

## DATA




PARP-1 (5A5): sc-56197. Western blot analysis of PARP-1 expression in Ramos (**A**), Jurkat (**B**), HeLa (**C**) and CCRF-CEM (**D**) nuclear extracts and Daudi (**E**) and Raji (**F**) whole cell lysates.




PARP-1 (5A5): sc-56197. Western blot analysis of PARP-1 expression in Jurkat (**A**), NTERA-2 cl.D1 (**B**), HL-60 (**C**) and THP-1 (**D**) whole cell lysates.

## SELECT PRODUCT CITATIONS


1. Li, X., et al. 2009. Inhibitor of growth 4 induces growth suppression and apoptosis in glioma U87MG. Pathobiology 76: 181-192.
2. Zhang, Y., et al. 2016. Nucleation of DNA repair factors by FOXA1 links DNA demethylation to transcriptional pioneering. Nat. Genet. 48: 1003-1013.
3. Li, Y., et al. 2016. Xanthohumol inhibits proliferation of laryngeal squamous cell carcinoma. Oncol. Lett. 12: 5289-5294.
4. Lessard, S.J., et al. 2016. The AMPK-related kinase SNARK regulates muscle mass and myocyte survival. J. Clin. Invest. 126: 560-570.
5. Zhang, D., et al. 2017. Echinacoside alleviates UVB irradiation-mediated skin damage via inhibition of oxidative stress, DNA damage, and apoptosis. Oxid. Med. Cell. Longev. 2017: 6851464.
6. Ge, Y., et al. 2017. Synergistic antitumor effects of CDK inhibitor SNS-032 and an oncolytic adenovirus co-expressing TRAIL and Smac in pancreatic cancer. Mol. Med. Rep. 15: 3521-3528.
7. Sun, L., et al. 2017. WRN is recruited to damaged telomeres via its RQC domain and tankyrase1-mediated poly-ADP-ribosylation of TRF1. Nucleic Acids Res. 45: 3844-3859.
8. Toots, M., et al. 2017. Identification of several high-risk HPV inhibitors and drug targets with a novel high-throughput screening assay. PLoS Pathog. 13: e1006168.
9. Lin, H.Y., et al. 2018. Design and characterization of α-lipoic acyl shikonin ester twin drugs as tubulin and PDK1 dual inhibitors. Eur. J. Med. Chem. 144: 137-150.
10. Machado-Neto, J.A., et al. 2018. Metformin exerts multitarget antileukemia activity in $JAK2^{V617F}$-positive myeloproliferative neoplasms. Cell Death Dis. 9: 311.


## RESEARCH USE

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