SANTA CRUZ BIOTECHNOLOGY, INC.

PARP-1 (B-10): sc-74470

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.
3. Darmon, A.J., et al. 1995. Activation of the apoptotic protease CPP32 by cytotoxic T-cell-derived granzyme B. Nature 377: 446-448.

CHROMOSOMAL LOCATION

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

SOURCE

PARP-1 (B-10) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of PARP-1 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. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-74470 X, 200 µg/0.1 ml.

PARP-1 (B-10) is available conjugated to agarose (sc-74470 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-74470 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-74470 PE), fluorescein (sc-74470 FITC), Alexa Fluor® 488 (sc-74470 AF488), Alexa Fluor® 546 (sc-74470 AF546), Alexa Fluor® 594 (sc-74470 AF594) or Alexa Fluor® 647 (sc-74470 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-74470 AF680) or Alexa Fluor® 790 (sc-74470 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

PARP-1 (B-10) is recommended for detection of PARP-1 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 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.

PARP-1 (E-8) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

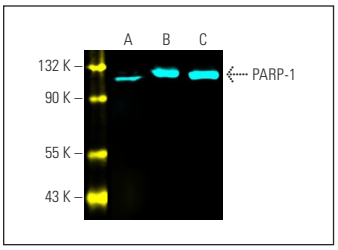
Molecular Weight of full-length PARP-1: 116 kDa.

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

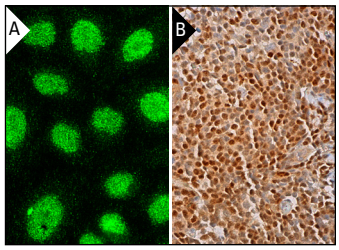
Molecular Weight of PARP-1 N-terminal cleavage product: 24 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or MM-142 cell lysate: sc-2246.

DATA



PARP-1 (B-10) Alexa Fluor® 647: sc-74470 AF647. Direct fluorescent western blot analysis of PARP-1 expression in MM-142 (**A**), HeLa (**B**) and K-562 (**C**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 488: sc-516790.



PARP-1 (B-10): sc-74470. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing nuclear and cytoplasmic staining of cells in germinal center and cells in non-germinal center (**B**).

SELECT PRODUCT CITATIONS

1. Ba, X., et al. 2010. *Trypanosoma cruzi* induces the reactive oxygen species-PARP-1-RelA pathway for up-regulation of cytokine expression in cardiomyocytes. J. Biol. Chem. 285: 11596-11606.
2. Wu, J., et al. 2019. Novel compound cedrelone inhibits hepatocellular carcinoma progression via PBLD and Ras/Rap1. Exp. Ther. Med. 18: 4209-4220.
3. Zou, Y., et al. 2020. Illuminating NAD^+ metabolism in live cells and *in vivo* using a genetically encoded fluorescent sensor. Dev. Cell 53: 240-252.e7.

RESEARCH USE

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