SANTA CRUZ BIOTECHNOLOGY, INC.

PARP-1 (F-2): sc-8007

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.

SOURCE

PARP-1 (F-2) is a mouse monoclonal antibody raised against amino acids 764-1014 mapping at the C-terminus of PARP of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PARP-1 (F-2) is available conjugated to agarose (sc-8007 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-8007 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-8007 PE), fluorescein (sc-8007 FITC), Alexa Fluor® 488 (sc-8007 AF488), Alexa Fluor® 546 (sc-8007 AF546), Alexa Fluor® 594 (sc-8007 AF594) or Alexa Fluor® 647 (sc-8007 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-8007 AF680) or Alexa Fluor® 790 (sc-8007 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, PARP-1 (F-2) is available conjugated to either TRITC (sc-8007 TRITC, 200 µg/ml) or Alexa Fluor® 405 (sc-8007 AF405, 200 µg/ml), for IF, IHC(P) and FCM.

RESEARCH USE

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

APPLICATIONS

PARP-1 (F-2) is recommended for detection of full-length PARP-1 and the C-terminal cleavage product of PARP-1 of 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).

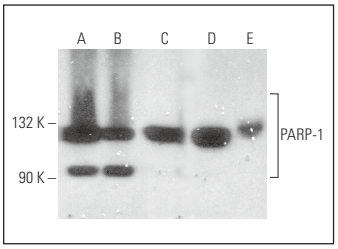
Suitable for use as control antibody for PARP-1 siRNA (h): sc-29437, PARP-1 shRNA Plasmid (h): sc-29437-SH and PARP-1 shRNA (h) Lentiviral Particles: sc-29437-V.

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

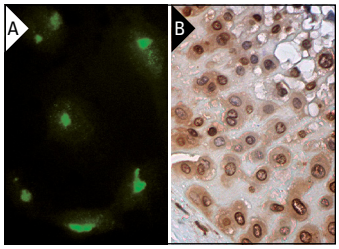
Molecular Weight of PARP-1 C-/N-terminal cleavage products: 89/24 kDa.

Positive Controls: Ramos nuclear extract: sc-2153, HL-60 whole cell lysate: sc-2209 or Daudi cell lysate: sc-2415.

DATA



PARP-1 (F-2): sc-8007. Western blot analysis of PARP-1 expression in Ramos (**A**) and K-562 (**B**) nuclear extracts and HL-60 (**C**), Daudi (**D**) and NTERA-2 cl.D1 (**E**) whole cell lysates.



PARP-1 (F-2): sc-8007. Immunofluorescence staining of methanol-fixed HeLa cells showing nucleolar localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing nuclear and cytoplasmic staining of decidual cells (**B**).

SELECT PRODUCT CITATIONS

1. Kuo, M.L., et al. 1997. Transforming growth factor β1 attenuates ceramide-induced CPP32/Yama activation and apoptosis in human leukaemic HL-60 cells. Biochem. J. 327: 663-667.
2. Yehia, L., et al. 2021. Non-canonical role of wild-type SEC23B in the cellular stress response pathway. Cell Death Dis. 12: 304.
3. Luo, H., et al. 2022. Androgen receptor splicing variant 7 (ARv7) promotes DNA damage response in prostate cancer cells. FASEB J. 36: e22495.
4. Rose, A.M., et al. 2023. Induction of the alternative lengthening of telomeres pathway by trapping of proteins on DNA. Nucleic Acids Res. 51: 6509-6527.
5. Hill, B.R., et al. 2024. Loss of POLE3-POLE4 unleashes replicative gap accumulation upon treatment with PARP inhibitors. Cell Rep. 43: 114205.

STORAGE

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