

POT1 (M1-P1H5): sc-81711

BACKGROUND

POT1 (protection of telomeres 1 homolog (*S. pombe*)) human protein mediates chromosome end-protection and telomere-length regulation and has a strong sequence preference for binding telomeric repeat tracts. POT1 can disrupt telomeric repeat tracts that form intramolecular G-quadruplexes through Hoogsteen base-pairing. POT1 belongs to a family of oligonucleotide-binding (OB)-fold-containing proteins that include *Oxytricha nova* TEBP, Cdc13 and spPot1, which specifically recognize telomeric single-stranded DNA (ssDNA). Telomere maintenance involves the cooperation of several telomeric factors, including telomerase, TRF1, TRF2, RAP1, TIN2, Tankyrase, PINX1 and POT1. Alterations in POT1 expression levels may be associated with stomach carcinogenesis and GC progression.

REFERENCES

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- Colgin, L.M., et al. 2003. Human POT1 facilitates telomere elongation by telomerase. *Curr. Biol.* 13: 942-946.
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- Kondo, T., et al. 2004. Expression of POT1 is associated with tumor stage and telomere length in gastric carcinoma. *Cancer Res.* 64: 523-529.
- Liu, D., et al. 2004. PTP interacts with POT1 and regulates its localization to telomeres. *Nat. Cell Biol.* 6: 673-680.
- Kelleher, C., et al. 2005. Human protection of telomeres 1 (POT1) is a negative regulator of telomerase activity *in vitro*. *Mol. Cell. Biol.* 25: 808-818.
- Yang, Q., et al. 2005. POT1 and TRF2 cooperate to maintain telomeric integrity. *Mol. Cell. Biol.* 25: 1070-1080.
- Hockemeyer, D., et al. 2005. POT1 protects telomeres from a transient DNA damage response and determines how human chromosomes end. *EMBO J.* 24: 2667-2678.
- Opresko, P.L., et al. 2005. POT1 stimulates RecQ helicases WRN and BLM to unwind telomeric DNA substrates. *J. Biol. Chem.* 280: 32069-32080.

CHROMOSOMAL LOCATION

Genetic locus: POT1 (human) mapping to 7q31.33.

SOURCE

POT1 (M1-P1H5) is a mouse monoclonal antibody raised against a synthetic peptide corresponding to amino acids 568-577 of POT1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

POT1 (M1-P1H5) is recommended for detection of POT1 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for POT1 siRNA (h): sc-44032, POT1 shRNA Plasmid (h): sc-44032-SH and POT1 shRNA (h) Lentiviral Particles: sc-44032-V.

Molecular Weight of POT1 isoforms: 38/52/58/71 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

SELECT PRODUCT CITATIONS

- Sadhukhan, R., et al. 2018. Expression of telomere-associated proteins is interdependent to stabilize native telomere structure and telomere dysfunction by G-quadruplex ligand causes TERRA upregulation. *Cell Biochem. Biophys.* 76: 311-319.
- Li, P., et al. 2019. Nuclear localization of Desmoplakin and its involvement in telomere maintenance. *Int. J. Biol. Sci.* 15: 2350-2362.
- Tran, H.T.T., et al. 2020. Long-term exposure to "low-dose" bisphenol A decreases mitochondrial DNA copy number, and accelerates telomere shortening in human CD8⁺ T cells. *Sci. Rep.* 10: 15786.
- Sharma, S., et al. 2021. Human telomerase is directly regulated by non-telomeric TRF2-G-quadruplex interaction. *Cell Rep.* 35: 109154.

STORAGE

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

PROTOCOLS

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