

# POT1 siRNA (h): sc-44032

## 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

- Loayza, D., et al. 2003. POT1 as a terminal transducer of TRF1 telomere length control. *Nature* 423: 1013-1018.
- Colgin, L.M., et al. 2003. Human POT1 facilitates telomere elongation by telomerase. *Curr. Biol.* 13: 942-946.
- Loayza, D., et al. 2004. DNA binding features of human POT1: a nonamer 5'-TAGGGTTAG-3' minimal binding site, sequence specificity, and internal binding to multimeric sites. *J. Biol. Chem.* 279: 13241-13248.
- 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.

## CHROMOSOMAL LOCATION

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

## PRODUCT

POT1 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see POT1 shRNA Plasmid (h): sc-44032-SH and POT1 shRNA (h) Lentiviral Particles: sc-44032-V as alternate gene silencing products.

For independent verification of POT1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-44032A, sc-44032B and sc-44032C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

POT1 siRNA (h) is recommended for the inhibition of POT1 expression in human cells.

## SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10  $\mu$ M in 66  $\mu$ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

## GENE EXPRESSION MONITORING

POT1 (M1-P1H5): sc-81711 is recommended as a control antibody for monitoring of POT1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor POT1 gene expression knockdown using RT-PCR Primer: POT1 (h)-PR: sc-44032-PR (20  $\mu$ l, 564 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- Lanna, A., et al. 2022. An intercellular transfer of telomeres rescues T cells from senescence and promotes long-term immunological memory. *Nat. Cell Biol.* 24: 1461-1474.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.