Product Information

Anti-TRF1 Antibody, Mouse Monoclonal

~2 mg/mL, clone TRF-78, purified from hybridoma cell culture

T1948

Product Description

Anti-TRF1 (mouse IgG1 isotype) is derived from the TRF-78 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from mice immunized with a human TRF1 protein produced in baculovirus. The isotype is determined using ImmunoType™ Kit (Cat. No. ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Cat. No. ISO-2).

Anti-TRF1 recognizes human TRF1 and may be used in ELISA and immunoblotting (approx. 70 kDa).

DNA polymerases replicate eukaryotic chromosomes, however, these enzymes are unable to complete the replication process and leave the chromosome with a 3' overhang. This situation may lead to an improper DNA replication and may activate the double-strand break repair cascade that may shorten the length of the chromosome. In order to maintain proper replication, vertebrate chromosomes are replicated in their ends by a reverse transcriptase polymerase called telomerase.[1,2] This protein is responsible for the addition of TTAGGG repeats onto the 3' ends of chromosomes. These repeat ends are called telomers and may contain 16-100 nucleotides depending of the species. Thus, the role of telomers is to protect chromosome ends from recombination, fusion, and from being recognized as damaged DNA.[1-3]

TRF1 and TRF2 (TTAGGG Repeat binding Factors) are two major proteins that bind to human telomers.[1] TRF1 has a DNA binding domain with high homology to the Myb family of transcription factors. Unlike the Myb family that contains only one DNA binding motif, TRF1 has multiple of this motif. TRF1 has a negative effect on the length of the telomer. Over expression of TRF1 in cancer cells that contain telomerase activity, causes the shortening of the length of their telomers,[1] while inhibition of TRF1 causes the elongation of telomers. It was shown that the level of TRF1 in the cells does not affect the expression of the telomerase protein. This suggests that TRF1 may act directly on the activity of the telomerase protein.

Tankyrase is a protein that interacts with TRF1. The C-terminal region of tankyrase is homologous to PARP. In response to DNA damage, the PARP protein mediates ADP-ribose polymers of protein acceptors. In vitro studies have shown that tankyrase is responsible for that polyribosylation of TRF1, which in turn abolishes its ability to bind telomers.[4]

Reagent

Anti-TRF1 is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: Approx. 2 mg/mL.

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots at -20 °C. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

A minimum working concentration of 2-4 µg/mL is determined by immunoblotting using HeLa nuclear extract.

Note: In order to obtain the best results using various techniques and preparations, we recommend deter-mining the optimal working dilutions by titration.

References

1. de Lange, T., Oncogene, 21, 532-540 (2002).
2. Blackburn, E.H., et al., Cell, 106, 661-673 (2001).
3. Scherthan, H., et al., Mol. Biol. Cell., 11, 4189-4203 (2000).
4. Smith, S., et al., J. Cell Sci., 112, 3649-3656 (1999).

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