abcam

ab13579

Anti-TRF2 antibody [4A794]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.05% Sodium azide Constituents: PBS, 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Full Length Protein corresponding to Human TERF2. The exact immunogen used to generate this antibody is proprietary information. Database link Q15554
Clone number	4A794
Purification technique	Affinity purification Protein G
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	4 µg/mL
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1 µg/cells for 6 µg/cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Target data

See full target information TERF2

Function

Binds the telomeric double-stranded 5'-TTAGGG-3' repeat and plays a central role in telomere maintenance and protection against end-to-end fusion of chromosomes (PubMed:15608617, PubMed:16166375, PubMed:20655466, PubMed:28216226, PubMed:31595153, PubMed:9326950, PubMed:9326951, PubMed:9476899). In addition to its telomeric DNA-binding role, required to recruit a number of factors and enzymes required for telomere protection, including the shelterin complex, TERF2IP/RAP1 and DCLRE1B/Apollo (PubMed:16166375, PubMed:20655466). Component of the shelterin complex (telosome) that is involved in the regulation of telomere length and protection (PubMed:16166375). Shelterin associates with arrays of double-stranded 5'-TTAGGG-3' repeats added by telomerase and protects chromosome ends; without its protective activity, telomeres are no longer hidden from the DNA damage surveillance and chromosome ends are inappropriately processed by DNA repair pathways (PubMed:16166375). Together with DCLRE1B/Apollo, plays a key role in telomeric loop (T loop) formation by generating 3' single-stranded overhang at the leading end telomeres: T loops have been proposed to protect chromosome ends from degradation and repair (PubMed:20655466). Required both to recruit DCLRE1B/Apollo to telomeres and activate the exonuclease activity of DCLRE1B/Apollo (PubMed:20655466, PubMed:28216226). Preferentially binds to positive supercoiled DNA (PubMed:15608617, PubMed:20655466). Together with DCLRE1B/Apollo, required to control the amount of DNA topoisomerase (TOP1, TOP2A and TOP2B) needed for telomere replication during fork passage and prevent aberrant telomere topology (PubMed:20655466). Recruits TERF2IP/RAP1 to telomeres, thereby participating in to repressing homology-directed repair (HDR), which can affect telomere length (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	TRF2 also known as Telomeric Repeat-binding Factor 2 is a protein important for telomere protection and maintenance. TRF2 weighs approximately 55 kDa and is widely expressed in human tissues especially in those with high turnover rates. This protein binds specifically to double-stranded telomeric DNA and forms a protective cap at the end of chromosomes helping to regulate telomere length and integrity. By securing the telomere's structure TRF2 prevents chromosomes from being recognized as damaged DNA.
Biological function summary	TRF2 plays a central role in telomere function by assembling into the shelterin complex. This complex which includes other proteins like TRF1 TIN2 POT1 TPP1 and RAP1 is essential for controlling telomere length and stability. TRF2 is responsible for inhibiting DNA damage response pathways at telomeres ensuring that the natural chromosomal ends are not mistaken for double-strand breaks. This suppression of unwanted DNA damage response is important for normal cell division and avoiding cellular senescence.
Pathways	Researchers have placed TRF2 within the DNA repair and telomere maintenance pathways. TRF2 interacts with several other proteins such as Ku70/80 and RAD51 that are instrumental in the DNA repair process. Furthermore TRF2 influences the Alternative Lengthening of Telomeres (ALT) pathway which is a telomere lengthening process found in some cancer cells. These connections highlight TRF2's role in maintaining genomic stability through its capacity to regulate telomere-associated proteins and pathways.
Associated diseases and disorders	TRF2 has been linked to cancer and aging. Elevated levels of TRF2 have been detected in various cancers including breast and prostate cancer suggesting a role in tumorigenesis where it contributes to the stability of cancer cell telomeres. Additionally defects in TRF2 or its interaction with partner proteins like POT1 can

lead to dysfunctional telomeres which contribute to the aging process and age-related diseases by affecting cell proliferation and survival. These links demonstrate the importance of TRF2 in normal cellular function and its potential as a therapeutic target in disease intervention.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

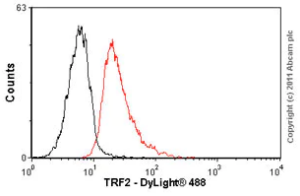
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

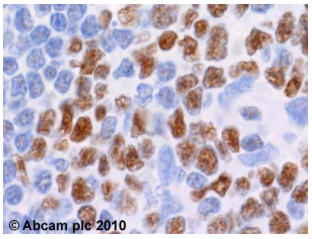
6 product images



Flow Cytometry (Intracellular) - Anti-TRF2 antibody [4A794] (ab13579)

TRF2 Flow Cytometry (Intracellular) staining using mouse Anti-TRF2 antibody

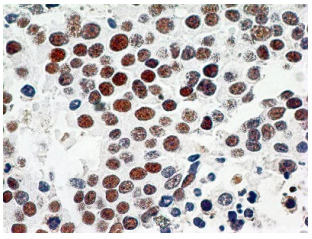
Overlay histogram showing HeLA cells stained with ab13579 (red line). The cells were fixed with 100% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab13579, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was Mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-TRF2 antibody [4A794] (ab13579)

TRF2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-TRF2 antibody

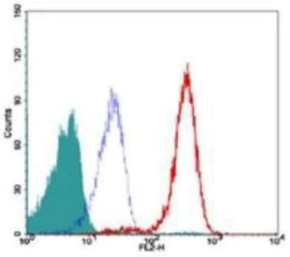
ab13579 (1µg/ml) staining TRF2 in human spleen, using an automated system (DAKO Autostainer Plus). Using this protocol there is strong nuclear staining in the germinal follicle.
Sections were rehydrated and antigen retrieved with the Dako 3 in 1 AR buffer EDTA pH 9.0 in a DAKO PT link. Slides were peroxidase blocked in 3% H2O2 in methanol for 10 mins. They were then blocked with Dako Protein block for 10 minutes (containing casein 0.25% in PBS) then incubated with primary antibody for 20 min and detected with Dako envision flex amplification kit for 30 minutes. Colorimetric detection was completed with Diaminobenzidine for 5 minutes. Slides were counterstained with Haematoxylin and coverslipped under DePeX. Please note that, for manual staining, optimization of primary antibody concentration and incubation time is recommended. Signal amplification may be required.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-TRF2 antibody [4A794] (ab13579)

TRF2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-TRF2 antibody

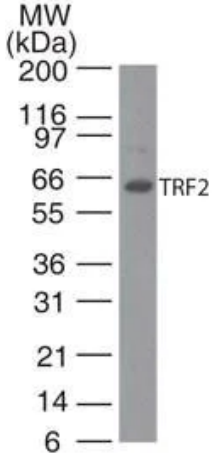
ab13579 staining TRF2 in human bladder carcinoma cells using Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections). Antigeen retrieval carried out by heat treatment in Citrate buffer pH6.0. Primary antibody diluted to 4µg/ml.



Flow Cytometry (Intracellular) - Anti-TRF2 antibody [4A794] (ab13579)

TRF2 Flow Cytometry (Intracellular) staining using mouse Anti-TRF2 antibody

Flow Cytometry (Intracellular) analysis of Jurkat cells labeling RF2 with ab13579 (red). The shaded histogram represents cells alone and blue represents isotype control.



Western blot - Anti-TRF2 antibody [4A794] (ab13579)

All lanes:
Western blot - Anti-TRF2 antibody [4A794] (ab13579) at 2 µg/mL

All lanes:
Jurkat cell lysate

Secondary

All lanes:
Goat anti-mouse Ig HRP

Predicted band size: 56 kDa

Western blot - Anti-TRF2 antibody [4A794] (ab13579)



All lanes:
Western blot - Anti-TRF2 antibody [4A794] (ab13579)

All lanes:
HeLa cell lysate

Performed under reducing conditions.

Predicted band size: 56 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.