Product Datasheet

TRF-2 Antibody (4A794.15) - BSA Free
NB100-56506

Unit Size: 0.1 mg

Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.

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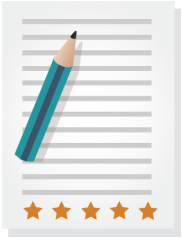
Updated 4/15/2024 v.20.1



NB100-56506

TRF-2 Antibody (4A794.15) - BSA Free

Product Information

Unit Size	0.1 mg
Concentration	1 mg/ml
Storage	Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.
Clonality	Monoclonal
Clone	4A794.15
Preservative	0.05% Sodium Azide
Isotype	IgG1 Kappa
Purity	Protein G purified
Buffer	PBS
Target Molecular Weight	59.6 kDa

Product Description

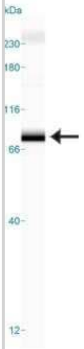
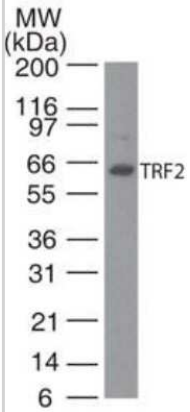
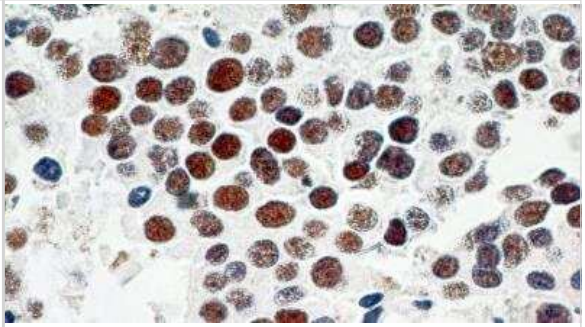
Description	The TRF2 antibody is referred to as both clone 4A794.15 and 4A794 in the published literature. The TRF2 antibody recognizes full-length TRF2 as well as TRF2 forms lacking both the N-terminal basic domain (B) and the telobox Myb-like C-terminal DNA-binding domain (M). TRF2 forms missing the B and M domains are often referred to as mutant TRF2. Although the exact epitope recognized by the TRF2 antibody has not been mapped, the scientific literature indicates it is in the D or L domain, but not in the B or M domain.
Host	Mouse
Gene Symbol	TERF2
Species	Human, Mouse, Rat, Deer, Marsupial
Marker	Telomeres marker
Specificity/Sensitivity	The TRF2 antibody recognizes full-length TRF2 as well as TRF2 forms lacking both the N-terminal basic domain (B) and the telobox Myb-like C-terminal DNA-binding domain (M). TRF2 forms missing the B and M domains are often referred to as mutant TRF2. Although the exact epitope recognized by the TRF2 antibody has not been mapped, the scientific literature indicates it is in the D or L domain, but not in the B or M domain.
Immunogen	This TRF-2 Antibody (4A794.15) was developed against Baculovirus expressed whole length TRF2 protein, used for immunizing mice and splenocytes used to generate the hybridoma clone (NP_005643).

Product Application Details

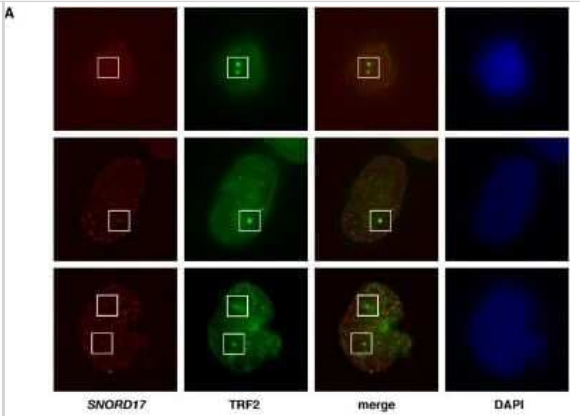
Applications	Western Blot, Simple Western, ELISA, Flow Cytometry, Immunoblotting, Immunocytochemistry/ Immunofluorescence, Immunohistochemistry, Immunohistochemistry-Frozen, Immunohistochemistry-Paraffin, Immunoprecipitation, Proximity Ligation Assay, Chromatin Immunoprecipitation (ChIP), CyTOF-ready
Recommended Dilutions	Western Blot 2-4 ug/ml, Simple Western 1:50, Flow Cytometry 0.1 ug/10^6 cells, ELISA 2 ug/ml, Immunohistochemistry 1:10 - 1:500, Immunocytochemistry/ Immunofluorescence 1:10 - 1:500, Immunoprecipitation 2 ug/10^6 cells, Immunohistochemistry-Paraffin, Immunohistochemistry-Frozen 5 ug/ml, Immunoblotting reported in scientific literature (PMID 23708666), Proximity Ligation Assay reported in scientific literature (PMID 27366950), Chromatin Immunoprecipitation (ChIP) 1:10-1:500, CyTOF-ready

Application Notes	TRF-2 may be detected as a single band or as a doublet in Western blot. Okabe (2000) described the doublet as 65 and 69 kDa using clone 4A794.15. Observed molecular weights could vary depending on molecular weight standards used and gel conditions. In Simple Western only 10 - 15 uL of the recommended dilution is used per data point. Separated by Size-Wes, Sally Sue/Peggy Sue. The observed molecular weight of the protein may vary from the listed predicted molecular weight due to post translational modifications, post translation cleavages, relative charges, and other experimental factors.

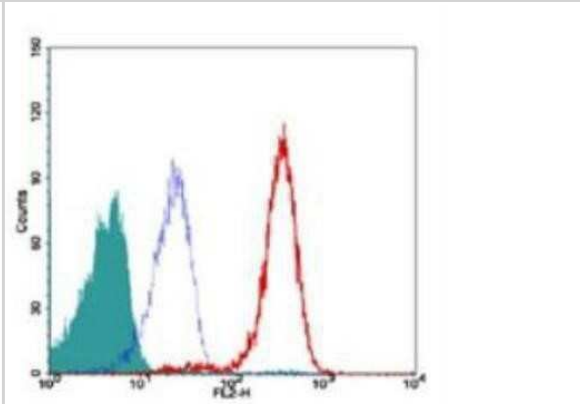
Images

Simple Western: TRF-2 Antibody (4A794.15) [NB100-56506] - Image shows a specific band for TRF2 in 1.0 mg/mL of HeLa lysate. This experiment was performed under reducing conditions using the 12-230 kDa separation system. Non-specific interaction with the 230 kDa Simple Western standard may be seen with this antibody.	
Western Blot: TRF-2 Antibody (4A794.15) [NB100-56506] - Analysis in human Jurkat cell lysate at 2 ug/mL. Goat anti-mouse Ig HRP secondary antibody and PicoTect ECL substrate solution were used.	
Immunohistochemistry-Paraffin: TRF-2 Antibody (4A794.15) [NB100-56506] - Transitional cell carcinoma, urinary bladder, stained with TRF2 antibody (4 ug/mL), peroxidase-conjugate and DAB chromogen. Note specific nuclear staining. Tumor/normal adjacent tissue array slide was used for this test. Staining of formalin-fixed tissues is enhanced by boiling tissue sections in 10 mM sodium citrate buffer, pH 6.0 for 10-20 min followed by cooling at RT for 20 min.	

Immunocytochemistry/Immunofluorescence: TRF-2 Antibody (4A794.15) [NB100-56506] - Localization of candidate RNAs at telomeres. Localization of SNORD17 at telomeres in human U-2 OS cells. Cells were fixed and sequentially incubated with Abs against TRF-2 and AlexaFluor 488-conjugated anti-mouse IgG. Subsequently, the cells were hybridized with the RNA probes and subjected to fluorescence microscopy. Three different cells are shown. Image collected and cropped by CiteAb from the following publication (http://dx.plos.org/10.1371/journal.pone.0123387), licensed under a CC-BY license.

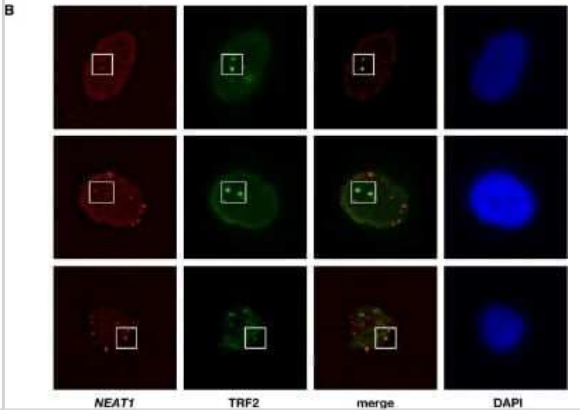


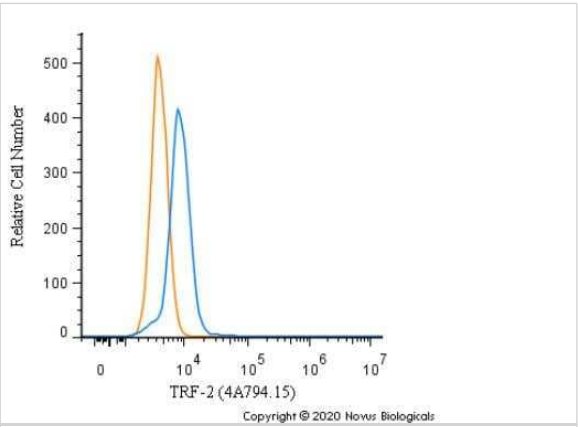
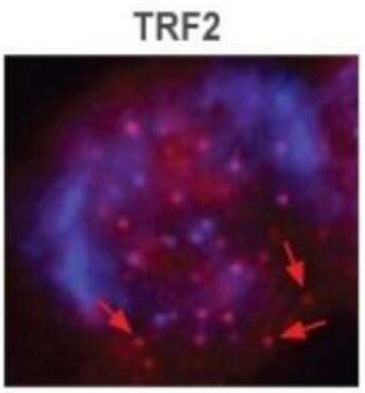
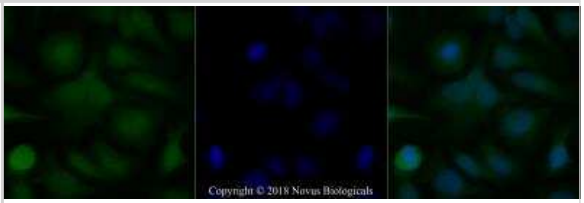
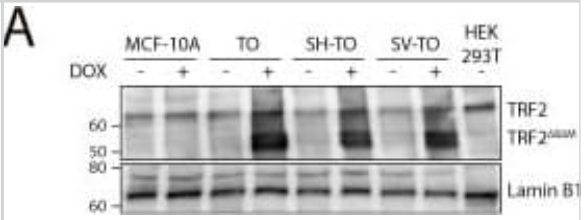
Flow Cytometry: TRF-2 Antibody (4A794.15) [NB100-56506] - Intracellular flow cytometric analysis of TRF2 in 10^6 human Jurkat cells using 0.1 ug of NB100-56506. The shaded histogram represents cells alone, blue represents isotype control and red represents NB100-56506, anti-TRF2.



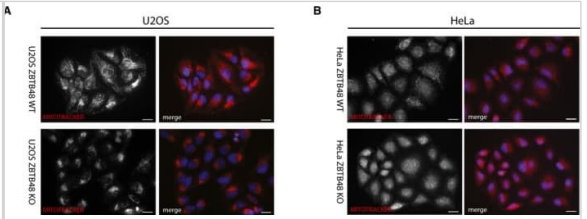
Western Blot: TRF-2 Antibody (4A794.15) [NB100-56506] - Total protein from mouse 3T3 cells was separated on a 12% gel by SDS-PAGE, transferred to PVDF membrane and blocked in 5% non-fat milk in TBST. The membrane was probed with 2.0 ug/mL anti-TRF2 in 1% non-fat milk in TBST and detected with an anti-mouse HRP secondary antibody using chemiluminescence.

Immunocytochemistry/Immunofluorescence: TRF-2 Antibody (4A794.15) [NB100-56506] - Localization of candidate RNAs at telomeres. Localization of NEAT1 at telomeres in human U-2 OS cells. Cells were fixed and sequentially incubated with Abs against TRF-2 and AlexaFluor 488-conjugated anti-mouse IgG. Subsequently, the cells were hybridized with the RNA probes and subjected to fluorescence microscopy. Three different cells are shown. Image collected and cropped by CiteAb from the following publication (http://dx.plos.org/10.1371/journal.pone.0123387), licensed under a CC-BY license.

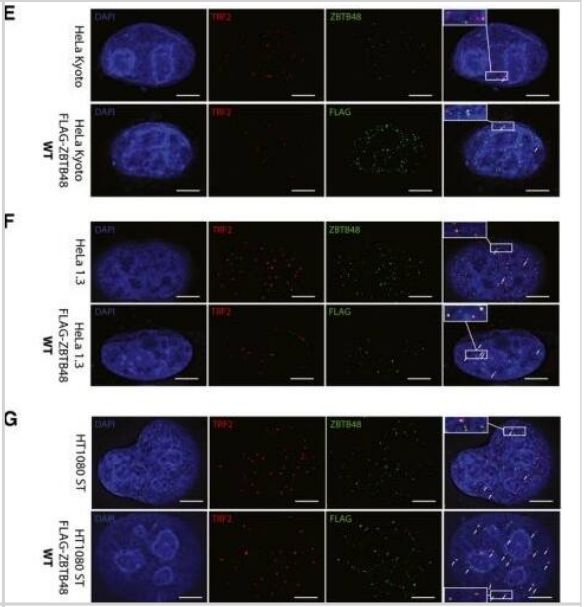


Flow Cytometry: TRF-2 Antibody (4A794.15) [NB100-56506] - An intracellular stain was performed on A431 cells with TRF2 Antibody [4A794.15] NB100-56506 (blue) and a matched isotype control (orange). Cells were fixed with 4% PFA and then permeabilized with 0.1% saponin. Cells were incubated in an antibody dilution of 1.0 ug/mL for 30 minutes at room temperature, followed by Mouse IgG (H+L) Cross-Adsorbed Secondary Antibody, Dylight 550 (35503, Thermo Fisher).	
Immunocytochemistry/Immunofluorescence: TRF-2 Antibody (4A794.15) [NB100-56506] - Staining of TRF2-bound telomeres in human HeLa cells (Courtesy of Fotiadou, et al, 2004).	
Immunocytochemistry/Immunofluorescence: TRF-2 Antibody (4A794.15) [NB100-56506] - HeLa cells were fixed for 10 minutes using 10% formalin and then permeabilized for 5 minutes using 1X PBS + 0.5% Triton-X100. The cells were incubated with anti-TRF-2 (4A794.15) conjugated to FITC [NB100-56506F] at 5 ug/mL for 1 hour at room temperature. Nuclei were counterstained with DAPI (Blue). Cells were imaged using a 40X objective.	
TRF2deltaBdeltaM expression induces chromosome end-to-end fusions in all inducible cell lines. (A) Immunoblots of MCF-10A, TO, SH-TO and SV-TO cell lines with and without DOX and HEK 293T. After 96 h of DOX treatment, the inducible cell lines expressed the truncated TRF2deltaBdeltaM protein (50 kDa); in contrast, uninduced cell lines, MCF-10A parental cell line and HEK 293T cells displayed only the endogen TRF2 protein (66 kDa). Lamin B1 was used as loading control. Image collected and cropped by CiteAb from the following publication (https://www.oncotarget.com/lookup/doi/10.18632/oncotarget.25502), licensed under a CC-BY licence.	

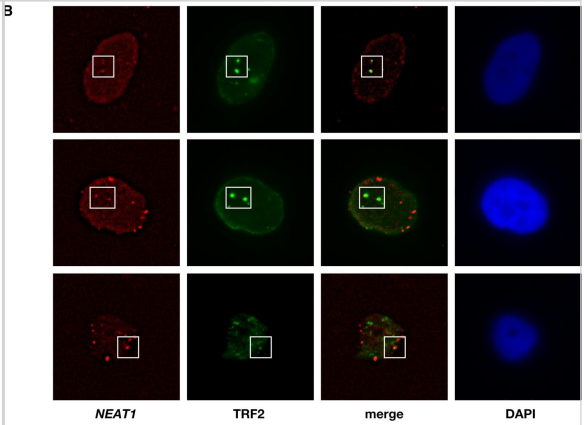
HIF protein stabilization and HIF-1α transcriptional activityRepresentative western blot showing protein levels of HIF-1α and HIF-2α (n = 3) in (A) cardiomyocytes derived from R1 and R1HIF-1α−/− mESC exposed to 1% O2 and (B) cardiomyocytes derived from HG8 mESC exposed to 1% O2 and DMOG. Cropped representative western blots are shown from total of n = 3. mRNA levels of (C) Glut1 and (D) VEGF in cardiomyocytes derived from HG8 mESC exposed to 1% O2 or DMOG determined by qRT-PCR (n = 3). Data are presented as 2−ΔCq ± SEM (groups were compared using one-way ANOVA with the Tukey (HSD) post hoc test *p < 0.05). Image collected and cropped by CiteAb from the following open publication (https://pubmed.ncbi.nlm.nih.gov/29137374), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Acetaldehyde toxicity to human FANCD2□deleted human cells and FANCD2 ubiquitylation in BRCA2□deleted cellsA, BHuman DLD1 cells in which FANCD2 was deleted with CRISPR/Cas9 and control cells were incubated with the indicated concentrations of cisplatin (A) or acetaldehyde (B) for 6 days before processing for dose□dependent viability assays. Graphs are representative of two independent experiments, each performed in triplicate. Error bars represent SD of triplicate values obtained from a single experiment. Inset, Western blot detection of FANCD2 expression. SMC1 was used as a loading control.CBRCA2□proficient (+BRCA2) or BRCA2□deficient (−BRCA2) DLD1 cells were incubated with 4 mM acetaldehyde for 48 h before being processed for immunoblotting as indicated.DH1299 cells expressing a DOX□inducible BRCA2 shRNA were grown in the presence or absence of DOX and transfected with control or FANCD2 siRNA before being processed for immunoblotting as indicated. DOX, doxycycline. Image collected and cropped by CiteAb from the following open publication (https://pubmed.ncbi.nlm.nih.gov/28729482), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



KDM4A interacts with the mTORC1/2 complex.(a) Relative mRNA levels of negative and positive regulators of the PTEN/AKT/mTOR pathway following KDM4A depletion. Quantifications of mRNAs by RT–qPCR were normalized against β-actin (ActB) mRNA. Asterisks denote a statistical difference between siKDM4A-treated cells and siGFP control cells, two-sided t-test P<0.05 (graph represents two independent experiences). Error bars represent standard deviation. (b) Co-immunoprecipitation of endogenous mTORC1/2 complex members with Flag-KDM4A in 293T transfected cells. (c) Comparison of mTORC1/2-associated proteins with Flag-tagged mTOR or KDM4A. The 293T cells were transfected with either Flag-eYFP, Flag-KDM4A or Flag-mTOR, and protein lysates were subjected to anti-Flag immunoprecipitation. (d) Co-immunoprecipitation of Flag-KDM4A and HA-DEPTOR in 293T cells. (e) Endogenous KDM4A co-immunoprecipitates with Flag-DEPTOR. (f) DEPTOR PDZ domain associates with endogenous KDM4A. Flag immunoprecipitation of flag-tagged full length or fragments of DEPTOR. The samples were not sonicated in this experiment to confirm that the interaction is independent of nucleus disruption. (g) Endogenous KDM4A and DEPTOR associate in 293E cells. (h) Endogenous KDM4A and DEPTOR co-immunoprecipitate in NHA-hTERT cells. Image collected and cropped by CiteAb from the following open publication (https://www.nature.com/articles/ncomms12700), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Publications

Zhang J, Zhang F, Porter KI et al. Telomere dysfunction in Tert knockout mice delays BrafV600E -induced melanoma development International journal of cancer 2023-09-20 [PMID: 37727982] (IHC-P, Mouse)

Details:
Dilution: 1:300

Hou J, Yun Y, Jeon B et al. Ginsenoside F1-Mediated Telomere Preservation Delays Cellular Senescence Int J Mol Sci 2023-09-19 [PMID: 37762556]

Jacome Burbano MS, Robin JD, Bauwens S et al. Non-canonical telomere protection role of FOXO3a of human skeletal muscle cells regulated by the TRF2-redox axis Communications biology 2023-05-25 [PMID: 37231173]

Details:
Dilution:1:200

Kliszczak M, Moralli D, Jankowska JD et al. Loss of FAM111B protease mutated in hereditary fibrosing poikiloderma negatively regulates telomere length Frontiers in cell and developmental biology 2023-06-05 [PMID: 37342232] (ICC/IF, Human)

Kliszczak M, Moralli D, Jankowska J et al. Loss of FAM111B protease mutated in hereditary fibrosing poikiloderma syndrome negatively regulates telomere length bioRxiv 2023-01-23

Dinami R, Pompili L, Petti E et al. MiR-182-3p targets TRF2 and impairs tumor growth of triple-negative breast cancer EMBO molecular medicine 2022-11-25 [PMID: 36426578] (IHC-P, Human)

Athmane N Comparing methods for visualising genomic loci in live mammalian cells Anal Chem 2017-11-10 [PMID: 29120617]

Smith S Persistent telomere cohesion protects aged cells from premature senescence Nat Commun 2020-07-05 [PMID: 32620872]

Mendez-Bermudez A, Lototska L, Pousse M et al. Selective pericentromeric heterochromatin dismantling caused by TP53 activation during senescence Nucleic acids research 2022-07-22 [PMID: 35819196] (ICC, Human)

Eguchi A, Torres-Bigio SI, Koleckar K, Birnbaum F TRF2 rescues pathogenic phenotypes in Duchenne muscular dystrophy cardiomyocytes derived from human iPSCs bioRxiv 2022-01-01 [PMID: 36719921] (WB)

Yu EY, Zahid SS, Aloe S Et al. Reciprocal impacts of telomerase activity and ADRN/MES differentiation state in neuroblastoma tumor biology Communications biology 2021-11-19 [PMID: 34799676] (WB, Human)

Mohanty Bk, Karam Ja, Howley Bv Et Al. Heterogeneous nuclear ribonucleoprotein E1 binds polycytosine DNA and monitors genome integrity Life science alliance 2021-09-01 [PMID: 34272328] (Chemotaxis)

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NB100-56506AF488	TRF-2 Antibody (4A794.15) [Alexa Fluor® 488]

Limitations

This product is for research use only and is not approved for use in humans or in clinical diagnosis. Primary Antibodies are guaranteed for 1 year from date of receipt.

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